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THE AIR FORCES NEWS LETTER

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THE BACK COVER

The silhouette this month is of the Douglas A-20A, light bomber used extensively by the Army Air Forces and, as both a light bomber and a highly successful night fighter, by the Royal Air Force. The ship is an all-metal, midwing monoplane powered with two air-cooled engines, and carries a crew of three. It has a single vertical fin and retractable tricycle landing gear.

Louisiana Maneuvers End

Support Commands Show Their Stuff

By Capt. Joseph S. Edgerton

AMERICAN air defense today is stronger and more realistic because of the participation of units of the Army Air Forces in the recently completed Louisiana maneuvers of the Second and Third Armies.

Here, for the first time, the "task force" idea was carried to a logical conclusion with the creation of the Second and Third Air Task Forces, to support the Second and Third Armies, respectively. These task forces, composed of mixed aviation units, were organized to provide air activity of whatever character might be required to support the work of the ground forces. The resulting air-ground teams were an American version--not a replica--of the famous German "Blitz" teams. They were, in no sense, servile copies of foreign developments. They were an American development, created by logical processes to meet our own problems but embodying the valuable experiences of the belligerents in the European wars.

The maneuvers proved not only the soundness of coordinated training and operation of air-ground teams, but they also provided a baptism of fire for a number of the newest and fastest of American warplanes, under actual field conditions, and a test of the organization which has been built up by the Army Air Forces, the Air Force Combat Command and the Air Corps to operate, maintain and supply these new and far advanced fighting planes.

Too Early To Weigh Results

Although the maneuvers have been concluded, it still is too early to accurately weigh the results. They will be reflected in improvements in design, operation and maintenance of aircraft, perhaps well into the future. They will have an influence on air and ground training. They will dictate changes in communications. They will have an important bearing on the future of the five Air Support Commands which now are in process of organization to provide permanent air support for the four Armies and the Armored Force.

It may be well to review at this point comments of the various maneuver commanders concerning the air or air-ground activities.

"The bringing together of the Army, Navy and Marine Air Squadrons provided valuable experience to all in air-ground cooperation, and the vital role which aviation plays in the military team," Lieut. Gen. Lesley J. McNair, Chief of Staff of General Headquarters and maneuver director, said in a statement at the close of the Louisiana show. "The results obtained were surprisingly effective.

"Supply services had tremendous problems keeping up with the fast moving situations and they performed their job well.

"GHQ feels that the maneuver was highly successful as culmination of a strenuous training program and highly beneficial to all ranks of the two armies engaged.

"We can never be entirely satisfied with the performance of our troops, but the soldier of 1941 will give a better account of himself than the soldier of any other period in our history."

"Beyond Criticism"

Lieut. Gen. Walter Krueger, commanding general of the Third Army, at the conclusion of the first phase of the maneuvers, said that coordination of ground-air operations "proved to be technically beyond criticism and worked with a new speed and accuracy."

Lieut. Gen. Delos C. Emmons, chief of the Air Force Combat Command, was a personal observer of much of the maneuver activity on the part of both armies and both supporting Air Task Forces. In summarizing his impressions of the maneuvers, General Emmons said:

"Air power played an important part in the first phase of the very *realistic* war between the Red and Blue armies. I underscore the word 'realistic' because this make-believe conflict had all the elements of real combat conditions short of a 'shooting war.'

"While the mock battles were chiefly staged as training courses for high-ranking officers in all branches of the Army, I can truly say that everyone in the air forces, from senior officers to young pilot officers, went through a highly valuable course of intense training. Among other things, air personnel learned, through actual experience, some of the problems of the ground forces with whom they were cooperating. Similarly, the ground forces were able to see for themselves how Army, Navy and Marine Aviation, in the field of pursuit, light and medium bombing, can be used in cooperation with their own war efforts.

"The question asked most frequently since the first phase of these maneuvers closed is: 'Which side won?'

"My answer is: 'Victory went to those who learned

the most.'

"This trial war is the largest ever staged in this country and it gave military aviation vast opportunity to demonstrate its usefulness. About 850 Army, Navy and Marine Corps planes took part. It was a severe test of men and machines and I am happy to say that they stood up well under the grueling grind of day and night operations, in many cases from small airdromes and under emergency conditions.

"In the first phase, these planes flew 40,000 hours and covered about 8,000,000 miles on between 3,000 and 4,000 airplane missions. During this phase alone, the planes consumed about 4,000,000 gallons of gasoline. Had they been carrying real bombs and firing real bullets, they would have dropped some 10,000,000 pounds of bombs and shot approximately 7,500,000 rounds of ammunition.

"There were, it is true, a few accidents and some unfortunate fatalities. But considering the large scale operation in small fields and the fact that many of the pilots have only recently graduated from training centers, the accident rate so far has been extremely low.

Improved Technique

"During the maneuver, members of the Air Force also had an opportunity to improve their technique in many phases of aerial warfare. For instance, the officers and men operating the new secret interceptor command radio locaters were able to track large numbers of planes for the first time. Operations of the air support control and the bomber units, wherein liaison officers with ground forces ask by radio for aviation support, were also carried out under conditions similar to those of actual war-time. The observation units, operating with divisions and corps, acted as the eyes of the Army and much valuable experience for both ground and air units was obtained.

"Another outstanding experience of this first phase was the mass attack by parachute troops. Pursuit units were assigned to protect the parachutists, while others were ordered to 'destroy' the air-borne troops before they could go into action.

"All in all, there is every reason for the Air Force Combat Command to feel pleased with the lessons learned in these exercises. We still have much to learn, but it is only through simulated war conditions such as these that we can test and develop tactics and theories for the real thing if it should ever come."

"Splendid Conduct"

Maj. Gen. Millard F. Harmon, commanding the Second Air Task Forces, in a message of congratulations to officers and men of the Army, Navy and Marine Corps units of his command, praised them for "their splendid conduct and high order of discipline." He said that leadership in all echelons was excellent and missions were conducted in a highly efficient manner and on time. Gen. Harmon expressed gratification with the work of the service command, the engineers, medical and signal units and the staffs of the Task Force, Wings and Groups.

"Due to the necessary dispersion of airdromes and squadrons with the consequent problems of supply of such essentials as food and clothing and the handling of a tremendous tonnage of bombs and ammunition involved, an efficient, well organized service command is an absolute essential for successful operations," General Harmon said.

"The service command of the Second Air Task Force organized and established under the supervision of the Third Air Force and commanded by Lieut.Col. L.L. Koontz, functioned throughout the maneuver with a high degree of efficiency."

One of the outstanding lessons learned from the maneuvers, General Harmon said, is that "proper indoctrination of combat units to insure uniformity of method and procedure in tactics and technique is most essential in order that orders and directives of the commander may be translated into action by the combat units."

"The members of these units should have a full concept of the purpose and method intended to insure proper execution with a minimum of detailed instructions," General Harmon explained.

Pursuit Forces Necessary

General Harmon also stressed the fact that the necessity for security that can only be provided by adequate pursuit forces has been "forcibly emphasized" during the maneuvers.

Speaking of the serviceability of the newer types of airplanes used on the maneuver, specifically such airplanes as the B-25 medium bomber, the A-20A light bomber and the P-39 pursuit, General Harmon said:

"The performance of these planes was very gratifying, as was the ability of young and relatively inexperienced officers in handling this equipment, in taking off, in the air and in landing."

General Harmon emphasized the value of cooperation between the Army and Navy-Marine Corps units during the maneuver and said of the Navy and Marine Corps personnel that "they are greatly to be admired for the adaptability which they have shown in functioning with the land components and in their willingness to extend themselves to make the war games successful from an air standpoint."

The purpose of the Task Forces created for the Louisiana maneuvers was explained by Maj. Gen. Herbert A. Dargue, commanding the Third Air Task Force, as follows:

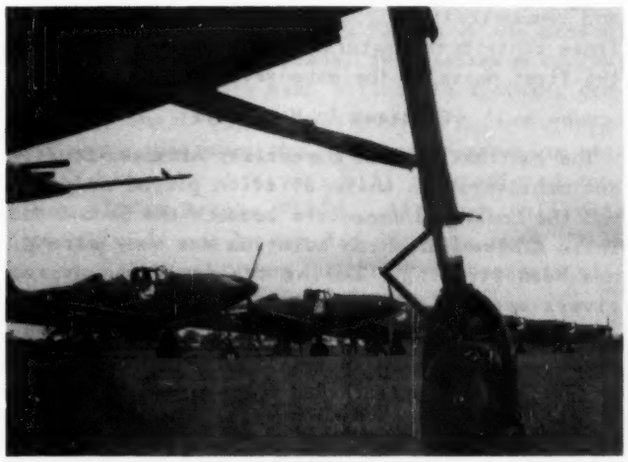
"What is the Third Air Task Force? It is simply an organization of air and ground units of the Army Air Forces and, more particularly of the Air

IN THE FIELD WITH THE ARMY AIR FORCES

Pictures from the Louisiana "Front"

TARGETS
Just before the battle

BIGWIGS ARRIVE
General Emmons, General Harmon, Mr. Lovett, and General Arnold



AIRACOBRAS
Awaiting "go" signal

QUICK WORK
This warehouse erected in 11 hours

AERIAL UMPIRES
They picked the winners

LEATHERNECK
One of the Marine planes participating

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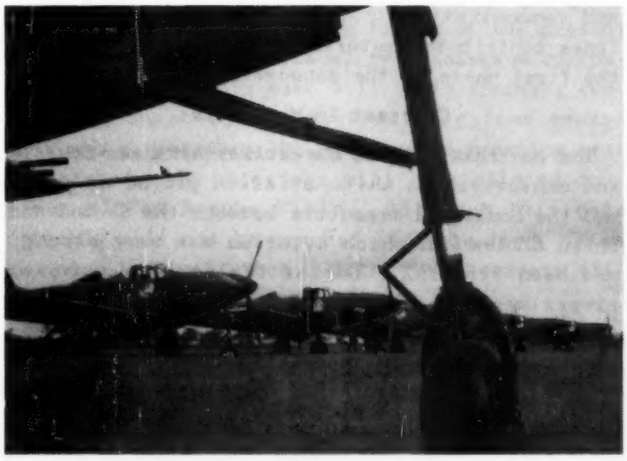

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Awaiting "go" signal

QUICK WORK
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AERIAL UMPIRES
They picked the winners

LEATHERNECK
One of the Marine planes participating

Force Combat Command, which has been brought together to do a particular job. This job is to support the Third Army. We are more than an Air Force team; we have become part of a team which includes all of the other Arms and Services. We are still a part, individually and together, of the Air Force Combat Command, under the leadership of Lieut. Gen. Delos C. Emmons. But, for the time being, we are more than that, we are a part of the Third Army, commanded by Lieut. Gen. Walter Krueger.

"Historical Importance"

"The combat exercises and the battle problems in support of that Army have historical importance. These are peace-time maneuvers, to be sure, but they are conducted under war time conditions. Many of us would have liked more time to prepare. But war doesn't wait and ask: 'Are you ready?'

"On the other hand, real war, or maneuvers carried out conscientiously under war conditions should give you--and I know that it will give you the soldier's spirit of fighting through everything; of overcoming all obstacles by the sheer weight of determination to get the job done. It is a task which calls for the maximum of enterprise, resourcefulness and team work on the part of every one of us."

The maneuvers in Louisiana are a part of a Summer and Fall series of maneuvers involving units of all four of the ground Armies. They were the first maneuvers, however, to involve large-scale air participation. The two Air Task Forces set up for the Louisiana maneuvers are to be perpetuated long enough to take part in the Carolina maneuvers which already are getting under way and are to continue through December 5. It is hoped to preserve the two Task Forces in substantially the same form and strength of the Carolina show.

After participation in these two strenuous and extremely realistic air-ground exercises, the units composing the two Task Forces are expected to be in the pink of condition for any type of field service in response to any emergency which may arise.

The Louisiana maneuvers provided a grueling test in all kinds of weather of the stamina of planes, pilots and maintenance personnel and equipment. Handicaps of poor fields, soft runways, lack of shelter, very bad weather and a difficult, arduous tactical problem gave the combat squadrons a real workout.

Not Bound By Convention

Improvisation played an important part in the use of the aviation components, particularly of the Third Army. General Dargue refused to be bound by convention in his use of the revolutionary new types of aircraft available to American combat pilots for the first time in maneuvers. Curtiss P-40 pursuit airplanes were employed as dive bombers. Sixty-five of them, each carrying a 500-pound demolition bomb, played a vital part in the smashing of a Red tank attack during a critical phase of the maneuvers. The new Bell P-39 Airocobra, with its 37-millimeter cannon and battery of machine guns, was used freely to strafe mechanized ground forces. The new Martin B-26 medium bomber, least-known quantity among the new air weapons, acquitted itself so well that one of General Dargue's staff officers expressed the belief that it has "put a new sting in the tail of American air defense." The Lockheed-P-38 two-engined pursuit, wrote a good record for itself against the Louisiana skies.

The most important use of his aviation components by General Krueger was in the canalizing and isolating of major portions of the Red forces. After the first few hours of the war, the Red and Sabine Rivers were converted into virtually impassable barriers by the blowing up of permanent bridges throughout the maneuver area and the frequent, repeated destruction of pontoon bridges. Road bridges and defiles were bombed with the most disastrous effects upon Red mobility.

Aviation contributed largely to the successful effort to cut off the Reds from their fuel supplies and communications. This destruction of supply lines contributed materially to the Red defeat in the first phase of the maneuvers.

Contrast In Maneuvers

The contrast between the earlier Arkansas-Louisiana maneuvers, in which aviation played no part, and the Louisiana maneuvers between the Second and Third Armies, in which aviation was very strong, has been striking. During the early maneuvers, rivers were treated, and properly so, as merely temporary obstacles. They ceased to become obstacles just as soon as artillery could be brought up, bridgeheads established and secured and pontoon bridges constructed. The whole strategy was based upon this concept of rivers as nothing more than temporary obstacles.

With the arrival of aviation on the scene, this concept was shattered. Commanders of the ground forces found to their sorrow that, so long as they lacked absolute command of the air, rivers were barriers nearly as insurmountable as the oceans. Repeated and fruitless efforts were made to throw pontoon bridges across the Red and Sabine Rivers and to maintain them. With disheartening regularity, the bombers and dive bombers appeared and the bridges went out. With them went much of the vital Red strategy. Parts of the Red strength were operating, to all intents and purposes, upon separated islands and could not be effectively united. Then, when the vital highway communications also were severed, the fate of the highly mechanized Red Army was sealed.

The Third Air Task Force made available to General Krueger a total of 447 tactical airplanes,

(Continued on Page 32)

Observer Training Program

THE WINGED "O" FOR THE EYES OF THE ARMY

By Oliver Townsend

THE eyes of the Army--that's what more than 600 officer-students of the Aerial Observation School at Brooks Field, Texas, will be by the end of FY 1942.

Observer students at Brooks are officers selected from arms and services other than the Air Forces, and from among non-flying Air Forces personnel. They are chosen by commanding officers for their special attributes, such as mature judgment, ability to think quickly, high sense of duty and determination. In a course lasting ten weeks these specially-chosen officers are taught how to carry out visual and photographic reconnaissance missions, and how to work in close conjunction with observation pilots of the Air Forces.

The school is still relatively new, so its quota of students is not completely filled at the present time. Under existing plans, two classes of approximately 100 students each will be in training constantly, one being graduated every five weeks. This means that when the anticipated training rate is reached, 200 observers will be stationed continuously at Brooks Field. Although this rate probably will not be reached for some time, it is expected that more than 600 trained observers will be produced by the end of FY 1942.

Qualification requirements for students are the same as for aviation cadets. In other words, each candidate must possess the equivalent of two years' college education and must be in Class I physically. Reserve and National Guard officers designated for aerial observation training are required to accept a one-year extension of active duty in order to qualify.

Candidates recommended by commanding officers for observation training are appointed in the following ratio: 10 per cent. field officers, 24 per cent. captains and 66 per cent. lieutenants. Field officers must be Regular Army officers, others may be members of the Officers' Reserve Corps or the National Guard.

10-Week Program

The preliminary stage of the 10-week training program lasts two weeks. During this time each student is given concentrated practice in code transmission and the use of aircraft radio for air-ground communication.

After completion of preliminary instruction each student observer is assigned to a pilot. These two, throughout the advanced flying phase of the course, operate as a combat team designed to teach both how to work in close conjunction. In order to complete the course successfully each observer must spend at least 60 hours in the air as part of a combat team.

Pilots used in the training of aerial observers are recently-commissioned graduates of the Advanced Twin-Engine Training School at Brooks Field. A plan whereby these pilots are held over at Brooks for five weeks prior to being assigned to combat units enables the Observer Training School to utilize completely-trained officer-pilots as part of its combat teams.

For training purposes combat teams are organized into flights--four teams to a flight. Each flight is under the personal supervision of a flight commander, who, usually a recent graduate of the Observer School, assigns students a grade at the completion of each day's work.

In addition to the time spent in the air, the advanced portion of the course also includes an intensive academic phase. This phase is covered in 128 hours of ground school instruction, which consists of lectures on subjects of particular importance to aerial observers. The most important ground school subjects, such as photography, navigation and artillery, are taught by specially-qualified instructors who supervise each student's progress in the actual performance of flying missions after the academic work is completed.

Communication Stressed

Also stressed throughout the course is the problem of communication, in all its phases. Study in this field includes the learning of the International Morse code with a speed of 15 words per minute, operation of aircraft radio and the use of prescribed radio procedure.

Upon the successful completion of the observer training course graduates are returned to their old arm or service. Henceforth, they remain available for assignment to observation squadrons of the Air Forces upon the recommendation of commanding officers.

In order to keep up with the latest developments in observation technique, Lt. Col. S.T. Smith, commanding officer of Brooks Field; Maj. E.H. Underhill, director of training, and Maj. R.C. Lindsay, assistant director of training, are kept constantly advised of such improvements by combat units in the field.

The great amount of attention which is given to aerial observer training is the result of the extremely important role played by aerial reconnaissance in modern warfare. It is the principal agent by which the commanders of all air and ground forces obtain information, and it is the original reason for the development of military aeronautics. Without it armies are blind.

Reconnaissance missions, if executed correctly, reveal the location of the enemy's forces, show activity in the rear of the enemy lines, disclose the nature of the terrain "over the hill," spot suitable objectives for artillery and air forces, show the results of air attacks and enable commanders to follow the progress of the battle. With the increasing use of mechanized *panzer* divisions, still another use of aerial observation has developed. In fact one of the chief purposes of the Brooks school is to train officers in the art of speeding up the Army's *panzer* divisions through direction from the air.

Reconnaissance Usually Visual

Air reconnaissance may be executed by either visual or photographic means. Usually it is visual, but photographs are often used to reveal details not visible to the naked eye, and to preserve certain scenes for permanent record. Cameras used for training purposes are large, not too complicated, and are just as efficient in many different types of situations. They are designed to take a clear photograph from a distance of only a few feet or from an altitude of several miles.

Although most missions are carried out during daylight, it is also possible to conduct both visual and photographic reconnaissance by night. When this is done, flares are used to illuminate the objective. These light up an area of about a quarter of a mile in diameter when fired from a height of approximately 1,000 feet.

Five principal types of photographs are used in carrying out aerial reconnaissance. Each one has its own special employment. Simplest of all is the "pinpoint," which is a single vertical photograph of an objective, procured for the purpose of locating the objective with respect to the surrounding terrain. Next are the "stereo-pairs," which consist of two or more overlapping photos of an objective with much the same purpose as the pinpoint. However these give, in a more finished form, a greater sense of depth and less distortion.

The Reconnaissance Strip

For picturing such long, narrow objectives as railroads and highways a group of overlapping photographs, known as a "reconnaissance strip," is used. When it is desired to make a photographic map of an area, a number of these reconnaissance strips are taken and arranged in a series. This makes it possible to cover large areas which could not be included in the other, more simple, types of photography.

One of the most common of all types of aerial reconnaissance photography is the "oblique." This is taken at an angle which reveals depth, size and the construction type of the objective much better than the other methods. It is also valuable in that it minimizes the effects of camouflage.

All of the latest techniques developed in connection with these methods of photography are taught at Brooks Field, this work being under the supervision of the Photographic Section. This section also turns out about 300 mosaics, 100 pinpoints and 100 publicity photographs daily; and 1,500 student identification pictures every 30 days.

Operated in conjunction with the Observer Training School at Brooks Field is the Advanced Twin-Engine Flying School, which includes more than 350 aviation cadets at the present time. Here cadets who have successfully completed courses in basic schools learn the advanced technique of formation flying, instrument flying, interception problems and day and night cross-country flights.

Brooks is one of the Army's oldest air fields, having been established on December 8, 1917. During the World War some flying instructors and a few combat pilots were trained there. After the war it was used as a "lighter-than-air" base for a number of years, and in 1922 became a primary flying school. In February, 1940, Brooks became a sub-base for the Kelly Field Advanced Flying School, and was established as an independent advanced school on January 1, 1941.

RECORD FLIGHT FROM GEIGER

Two officers of the Twelfth Reconnaissance Squadron (Geiger Field, Spokane) last month established two records for flights between the continental United States and Alaska. Flying a B-17C, they made the first nonstop hop from Spokane to Fairbanks and the fastest recorded trip from Anchorage to Spokane.

Maj. Ronald R. Walker, commanding officer of the squadron, was pilot. His copilot-navigator was Lieut. Harvard W. Powell. They flew from Spokane to Fairbanks in slightly more than 11 hours, bucking headwinds up the Alaskan coast. The Anchorage-Spokane hop took 7 hours 15 minutes, although no attempt was made to push the ship beyond normal cruising.

The crew included Tech. Sgt. John B. Crouse, Staff Sgt. J. Gordon Drake, Sgt. John Parker and Pvt. First Class Cecil R. Herman. Others aboard were members of a group which was making an inspection of Alaskan airports.

Our New Bases

Air Operations in Alaska

By Lieut. John C. A. Watkins

ANY air base where a soldier may spend his off-duty hours prospecting for and actually finding gold--or where he might saunter out after supper and shoot a moose--certainly is an air base with some definite attractions.

There are such Army Air Forces stations--in Alaska, which has been a part of the United States for so long that it cannot accurately be described as a "new base" but which has become recently, for obvious reasons, one of the nation's new military frontiers.

Soldiers stationed at the new fields there really are finding gold in their off-duty hours (not all of them, but some; not much, but a little) and the statement about bagging a moose after supper wouldn't be very much of an exaggeration were it not for a local policy which prevents the troops on duty in the territory from enjoying a very large share in some of the best hunting in the world.

Looking at it from all angles, it would be possible to claim, with some justification, that soldiers stationed at a place where fresh cucumbers cost 39¢ each, and a bowl of chili 75¢, might feel it necessary to spend all their spare time looking for gold. There is no question about the attractiveness of certain phases of duty in Alaska, but neither is there much doubt that it is the most expensive place under the American flag where an Air Forces officer or enlisted man could be stationed.

A group of officers from A.A.F. headquarters, in Washington, stopped in a Fairbanks restaurant while on a recent inspection trip through the territory. While they were eating (no cucumbers), a man came up, introduced himself and said that he had been a carpenter at Ladd Field, near the little inland mining town. He had quit, however, because he wasn't making enough money. No future in it. Thereupon a brash young second lieutenant in the group asked him just how much he had been making.

"Oh, $85 a week," the local citizen replied in an off-hand manner, tossing a handful of silver dollars down and ordering a round of the best for the gentlemen.

Two typical stations to which our personnel may be assigned are Ladd Field, which is about 150 miles south of the Arctic Circle, and just as cold, and Elmendorf Field, at Fort Richardson near the little seaport of Anchorage, just about as far south and down below a chain of mountains which includes historic and magnificent Mount McKinley. Saying that Elmendorf Field is part of Fort Richardson seems to the casual observer like saying that the dog is part of his tail, since the air base is very large and dominates the whole station, but that's the official designation.

The two fields, one very cold and one with a fairly mild climate--comparatively speaking--have a great many things in common.

LADD FIELD

Ladd Field is a cold weather experimental station for the Army Air Forces, commanded by Lieut. Col. Dale V. Gaffney, and for this reason, duty there differs in some respects from duty elsewhere in Alaska. Comparing it broadly to Elmendorf, it is a much more attractive post. It has permanent quarters for its enlisted men, as compared to the typical cantonment-type barracks at the field farther south, and a few permanent and, on the inside, very attractive quarters for married and bachelor officers. There are not enough of these to go around, however, and many of the officers who bring their wives to Alaska (at their own expense, although it is a three-year tour) must pay stiff prices for houses or apartments in Fairbanks.

Ladd is situated in the middle of what appears to be a glacial plain. In fact, a glacial stream, or slough, meanders through the reservation. Miles away, snow-covered mountains may be seen on clear days, but most of the territory around the field is fairly flat and covered with a thick growth of aspens and evergreens. The ground consists of a surface of muskeg--a mattress-like, thick, springy mass of vegetation which probably will be peat in another 1,000 years or so--with gravel and ice underneath. Ice is everywhere beneath a few feet of muskeg and gravel, and the trees consequently wither and die when their roots have passed down through this areable blanket. The result is that the expanse of woods is a vast patchwork of yellow and green from the air, with the dying trees toppling over when they reach a certain growth and the muskeg no longer is able to bear their weight and pulls loose from the gravel beneath.

"Summer" extends from late May until late September, with the temperature averaging around 65 degrees. The days are fairly warm, but a blouse or jacket usually is necessary in the evenings and early mornings. During the winter, the temperature has dropped as low as 70 degrees below

zero, although the average is said to be around 20 degrees below. There isn't a "great deal" of snow--about eight inches on the ground all the time. The weather usually is fine--a clear, dry cold--and flying is practicable virtually the year around. There are close to 24 hours of daylight in June, 24 hours of darkness in December. A midnight summer baseball game is not uncommon.

Living Expensive

The place is expensive, without any question. For instance, there are no laundry facilities on the post, and the civilian laundries in Fairbanks charge an average of 35¢ to wash a shirt, 15¢ for a pair of socks, 10¢ for a handkerchief. This latter is particularly ridiculous when one recalls that handkerchiefs cost only 4¢ each, new, at the commissary. The dry cleaners in town charge $2.50 to clean and press a uniform or a two-piece civilian suit, $1.25 for a pair of slacks or a blouse. An enlisted man on the post does some cleaning and pressing, but his capacity is limited. A very plain, quick haircut at a town barbershop costs $1 and the mind won't stand the shock of knowing the price of a shampoo.

Recreational facilities, while lavish compared to such outposts as Newfoundland, are only fair and largely what were there before the army arrived. There are two motion picture theaters in town, four miles away, which show fairly recent films. There are also bowling alleys (at 25¢ a line) and pool halls. An Army Motion Picture Service theater is operated in a temporary building on the post, showing somewhat hoary films (permanent facilities in the combined theater-barracks-hospital-post exchange should be in use by this time) and there is one tennis court. A gymnasium is needed, because during the winter the temperatures frequently get too low to permit the men to stay outdoors very long at a time.

Hunting is wonderful, for such game as moose, bears of several kinds and degrees of ferocity, ducks, grouse and ptarmigan. Nearly all can be found within a short distance of the post. Unfortunately, financially it is practically impossible for an enlisted man (or young officer with a family) to do any hunting legally, because of the restrictions. The territorial game commission has ruled (the chief of the Alaskan Defense Command is contesting this legally at present) that soldiers can't have resident licenses, which are only $1, although they are assigned to the station for three year or "duration" tours. Instead, if they want to hunt at all they must pay $11 for a visitor's permit to bag duck and grouse, $50 for big game such as bear and moose. Most of the local civilians feel that the men are being discriminated against and attribute the commission's attitude to pressure from the powerful organization of guides, who, by law, must accompany every visiting sportsman.

Housing facilities in Fairbanks are limited, expensive and quite ordinary. Married officers living in town (as most must) pay about $65 for an unfurnished, one-room, kitchenette and bath apartment. Electricity runs about $15 a month more, with heat bringing the total to about $100 a month. Larger quarters are proportionately more expensive. Some of the apartments are pretty crude, but the prices are high regardless.

Good Food Assortment

Military personnel can get a good assortment of fresh vegetables and meats at the commissary at reasonable prices. This is fortunate, since no officer with an average family could afford to feed them on his pay if he had to buy his fresh foods in town. Cucumbers at 39¢ each are an example, not an exception; fresh peaches are almost worth their weight in gold.

Outside of the prices, Fairbanks is a fairly attractive little town, with about 3,500 people. Placer gold mines a few miles outside the community provide it with its principal source of income. There are well-stocked, modern drug stores and clothing stores, fairly good restaurants (which serve excellent steaks and chops even if they do charge 75¢ for an 8¢ can of chili) and good schools. The University of Alaska is situated a few miles outside town, and has a good reputation. There is a small daily paper (10¢ per copy), a handsome Federal building, a good hotel and one or two paved streets.

Air Forces officers assigned either to Ladd or Elmendorf Field should bring with them the ordinary personal equipment, such as O.D. woolen uniforms (no cotton clothing can be worn), shirts and the like. About the only special clothing needed is woolen underwear and socks. The rest of the winter clothing required for daily life in such a climate as Ladd's is issued at the field. Heavy shoes, such as the G.I. field shoe, are desirable because the roads and walks are glacial gravel and hard on footgear.

ELMENDORF FIELD

Elmendorf Field is a much bigger establishment, commanded by Col. J.L. Davidson, and is "on" a large post, at which are stationed a great many soldiers of many different arms and services. Fort Richardson is headquarters of the Alaskan Defense Command, which is commanded by a ground officer, and the Air Forces personnel stationed there are considerably outnumbered by ground troops. Conditions therefore are somewhat different from those at Ladd Field, where the senior Air Forces officer is in complete charge at least of all he surveys.

Elmendorf Field is about three and-a-half miles from Anchorage, which is a community of about 3,000 persons normally. The cost of living in Anchorage

is about the same as in Fairbanks, but the latter is a much more attractive community. There is only one theater in Anchorage, which doesn't begin to accommodate its patrons, but there are literally dozens of saloons and other establishments of varying degrees of quality and respectability.

The laundry situation is even worse than in Fairbanks, although the prices are about the same. In Anchorage the laundries have more work than they can handle and they are consequently pretty independent. For example, the quartermaster at Fort Richardson couldn't get one of them to accept a contract to launder the men's sheets and pillow cases. There is a building available on the post for a quartermaster laundry and dry cleaning plant, but the equipment is not available. The result is that, like in Newfoundland, one of the toughest problems an enlisted man, or even an officer, faces is simply the problem of trying to keep clean.

Wives may be brought to Elmendorf Field, too, but at the husband's expense and with practically no chance of quarters being furnished. There are a few sets of quarters being prepared for the commanding officers of various units stationed on the post, but other married officers must find places to live in Anchorage, or leave their wives in the States. There are some apartments in town available at prices comparing to those in Fairbanks, but many officers are building their own houses with FHA assistance.

The cantonment type quarters for bachelor officers, and officers who left their wives behind, are crude and hard to keep clean. As is the case at many large cantonments in the States, there is a lot of dust and dirt flying through the air. The atmosphere of the place is as drab as it is dirty. Some units have attempted to brighten up their barracks by planting little evergreen trees around the buildings, but the general impression of the still-unfinished reservation isn't particularly pleasant.

Country Is Beautiful

The surrounding country, however, is beautiful. Great mountains tower above the post on all sides--some only a few miles away, some snow-covered peaks glistening rosily under the sun 50 or 100 miles from the reservation. A wild stream, said to be full of trout, tumbles noisily along the edge of the post. The fertile Matanuska Valley, where the "dust bowl refugees" were settled, is only about 50 miles away, and great woods are nearby.

The enlisted men have formed a "Gold Seekers' Club" and actually have staked claims and taken gold out of the ground. They play football with other post teams and with Anchorage, and participate in other sports. At the present time they are building, with their own hands and under the guidance of Maj. M.R. Marston, A.A.F. morale officer, and Lieut. Ralph K. Wheeler, A.A.F. chaplain, log recreation buildings both on the post and in Anchorage, on land donated by patriotic residents. Elmendorf Field has a small motion picture theater, accommodating about 300 men at one showing, and there is a larger post theater for the entire garrison. There is also a recreation hall with a library and ping pong tables, but bare of easy chairs, sofas and other comfortable, home-like furniture. The officers' club also is small, sparsely furnished and inadequate for the garrison.

One of the major obstacles to satisfactory living conditions, for either officers or enlisted men, is the transportation bottleneck. Transportation facilities are limited both by nature and general conditions, and it is extremely difficult to get enough furniture or supplies shipped in to be comfortable.

Except by air, the only way to get out of Fairbanks is by the Alaska Railroad, a single-track line which takes its time and charges pretty high rates, and the Richardson Highway, an engineering feat which, unfortunately, closes around October 1. Traffic between Anchorage and the States, again excepting air travel, is limited to the water-borne, and the service is limited. Personal belongings of literally hundreds of army people stationed in Alaska are stacked up on Seattle piers awaiting transportation--at premium rates.

Otherwise, conditions at Elmendorf are about the same as they are at Ladd Field, from the standpoint of living, sports and duty. While many of the married officers and practically all of the married enlisted men can't afford to bring their wives along and don't care much for the idea of being separated from them for two or three years, they say generally that they like duty in Alaska. Many hope to stay there when they retire. Many, but by no means a majority.

Three of the four bomber commands were assigned commanding generals last month. Brig. Gen. Arnold N. Krogstad was selected to head the First Bomber Command, First Air Force, at Langley Field, Va. Brig. Gen. John B. Brooks will command the Second Bomber Command, attached to the Second Air Force, at Fort George G. Wright, Washington.

Brig. Gen. Follett Bradley has been designated commanding officer of the Third Bomber Command, Third Air Force, Drew Field, Florida. The assignments leave unfilled the post of chief of the Fourth Bomber Command, of the Fourth Air Force, which will have its headquarters at Tucson, Arizona.

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Maj. Gen. Gerald C. Brant, commanding officer of the Gulf Coast Training Center at Randolph Field for the past year, was assigned last month to command the Newfoundland Base Command.

JOHN J. PERSHING
WASHINGTON

September 18, 1941.

Brigadier General Muir S. Fairchild,
Assistant Chief of the Air Corps,
War Department,
Washington, D. C.

My dear General Fairchild:

To the Air Corps, through you, permit me to extend my warmest thanks for the cordial birthday greetings your kind letter conveyed. I appreciated deeply the friendly thought of me, and seize this opportunity to send to all my heartiest good wishes.

Yours very sincerely,

John J. Pershing

Airways Traffic Control

AERIAL TRAFFIC COPS GET TOGETHER

By Major A. B. McMullen

THE War, Navy and Commerce Departments, (the latter including the Civil Aeronautics Board and the Civil Aeronautics Administration) recently indicated their interest and concern over air traffic by the joint establishment of the Interdepartmental Air Traffic Control Board.

Each agency has one member on this Board. Mr. Earl Ward represents the Civil Aeronautics Administration, Mr. E. N. Ellington the Civil Aeronautics Board, Lieut. Comdr. John C. Crommelin the Navy Department. The writer represents the War Department--and at the present time is Chairman of the Board.

The Board has no executive authority. It acts as a clearing house for not only air traffic problems but reviews applications and makes recommendations with respect to the use of the navigable air space by other activities--such as artillery firing training areas, searchlight and barrage balloon training areas, the location of aerial bombing and gunnery ranges, flight training fields, etc.

During the recent expansion of the Army Air Forces, tactical or training units have been located on Municipal or Civil Airports, many of which were airline terminals already faced with serious traffic problems.

P-39's And Cubs Don't Mix

The officials responsible for the location of these military units on civil airports realize the fact that 300 MPH bombers and 400 MPH pursuit planes cannot operate safely or efficiently from fields also used by small aircraft of the Cub and Aeronca class. Additional airports are, therefore, being constructed largely with Federal funds in these communities for private and commercial flying. This procedure confirms an opinion I have had for many years, namely, that more--properly placed and better designed--airports would lessen the need for regulations governing air traffic.

The air carriers and some non-scheduled civil aircraft will, however, continue to utilize most of these jointly occupied airports and it has become necessary to provide a satisfactory means for directing both civil and military traffic on--and in the vicinity of--these air terminals.

At first glance this would not appear to present any unusual problems, but War Department regulations and the principles of military command prohibit the commanding officer at these stations from delegating the responsibility for the safety and operation of the planes in his command to an employee of another department--particularly a civil agency not familiar with the problems peculiar to military aircraft operation. Therefore, both military and Civil Aeronautics Administration airport control personnel will be employed in the same towers at these jointly occupied airports.

Airports Join Federal Network

The CAA and the Air Corps are assuming the responsibility for the operation of air traffic control towers at 39 municipal airports as rapidly as personnel and equipment can be obtained. Thus a precedent has been established and the welding of airport and airway traffic control with the operation of both by the Federal Government has taken a big step forward. Only those civil airports that are occupied by Army or Navy tactical or training units will be taken into the Federally operated network at the present time.

Except during a military emergency determined by the station commander, the Senior CAA Operator will be in charge of the control of all traffic in the airport control zone. When both civil and military aircraft are involved, the CAA operator will issue instructions to Army or Navy aircraft only after consultation with the service operator.

Normally, Army and Navy tower operators will not issue instructions to civil aircraft--and in no case will instructions be issued to civil aircraft by service tower operators unless they hold a CAA "Air Traffic Control Operator Certificate."

The commanding officer of the Air Forces station may assume complete control and supervision of the airport traffic control tower and all air traffic within the airport control zone when the military situation demands such action. When such control is assumed, the commanding officer shall assume full responsibility for the safety of all air traffic in the airport control zone. During such periods, the CAA control tower operator shall direct civil air traffic as requested by the commanding officer.

Conditions To Be Determined

Just what military situations may arise which will require the commanding officer to assume control of air traffic in the vicinity of the airport no one can predict at the present time. It is possible that all traffic in the vicinity of the

airport might have to give way to a group of pursuit planes which had exhausted most of their comparatively limited supply of gasoline before arriving at the airport, or it might be necessary temporarily to clear the landing area to permit the landing or take-off of one or more military aircraft executing a mission of particular importance to our National Defense.

The recent Army maneuvers in Louisiana and adjoining states developed a situation which foreshadows many air traffic problems that may be expected as the Army and Navy Air Forces are increased, and should the present emergency become more acute. The combined air forces of the Second and Third Armies participating in these maneuvers included approximately 900 airplanes of all types. These planes were conducting missions in all types of weather and during the hours of darkness without lights, without flight plan, and at all altitudes. As a result, following recommendations of the IATCB, scheduled air carrier operations by Chicago and Southern, Eastern and Delta Air Lines were suspended by the CAA in the maneuver area except during daylight, and under contact flight rules.

The area involved covered approximately 130,000 square miles and roughly included the territory within and south of a line from Houston, Texas, to Dallas, Texas,--thence, eastward to Greenwood. Mississippi,--thence, south to Mobile, Alabama. This area was designated as a temporary danger area by the Administrator of Civil Aeronautics; and all civil aircraft, in addition to the air carriers were advised to restrict their operations in this area.

Air Line Schedules Rerouted

Similar Army maneuvers will be held in North and South Carolina during the latter part of November. A plan has already been approved authorizing Eastern Air Lines and Delta Air Lines to reroute their schedules to other airways and in some cases leave the established airways entirely during the hours of darkness and during instrument weather in such a manner that these schedules will not cross the maneuver area.

The cooperation of the airlines during these maneuvers has been excellent, and it is hoped that private flying will be as ready to assist the War and Navy Departments in working out solutions to similar problems where the National Defense or training programs require such action.

This month private flyers in the states bordering on the Atlantic Seaboard from Maine to North Carolina are having an opportunity to demonstrate their ability and willingness to cooperate with the military authorities in problems of National Defense.

I refer to the maneuvers being conducted by the First Interceptor Command. During these maneuvers, actual war conditions are being simulated as closely as possible. Pursuit aircraft and anti-aircraft artillery are assigned the task of driving off "hostile bomber" aircraft which simulate attacks on important cities and other objectives within 150 miles of the Atlantic Coast.

The recently developed warning network in this area is getting an opportunity to prove its efficiency, and observers are expected to report the approximate altitude, direction of flight and other pertinent information concerning every aircraft seen flying over the maneuver area during this period.

Special Traffic Control

No Army, Navy or Coast Guard aircraft is making a flight beyond ten miles from the airport from which take-off is made during maneuvers unless a flight plan has been approved by the local operations office and submitted to the nearest Air Corps Information Center. These information or filter centers are established at Boston, New York, Philadelphia, Baltimore, Norfolk and Harrisburg.

All civil pilots based in the maneuver area are requested to cooperate by filing similar flight plans with the manager of the airport where take-off is made. The airport manager will in turn telegraph or radio the information concerning the proposed flight to the nearest Information Center. With complete information available in each Information Center it will be possible to identify friendly or hostile aircraft quickly, and thereby conserve the use of pursuit aircraft on interception missions.

The manner in which private and commercial pilots demonstrate their ability to cooperate with government officials and carry out instructions during these maneuvers may--to a large extent--determine the conditions under which civil aircraft will be required to operate in a real emergency. While many of the changes in traffic control procedures recently inaugurated have resulted in further restrictions to civil aircraft, one change has taken place which (temporarily--at least) will remove some of these restrictions to which all pilots have been subjected. I refer to Air Space Reservations and Danger Areas which have been established over arsenals, munitions depots, torpedo plants and other types of high explosive activities.

Danger Area Policy Changed

These Danger Areas were intended--up until a few weeks ago--to prevent flight of aircraft over HI-X areas and the possibility that objects might be dropped from them or that they might fall or make forced landings on or within these areas. With the advent of the present war, the danger from subversive elements and sabotage to high explosive and military establishments became greater than

the danger from aircraft falling or dropping objects on these establishments.

The Navy Department has, therefore, abandoned the policy of designating air space reservations or danger areas over high explosive areas, and has recommended that previously designated areas of this type be discontinued. It is believed the War Department will adopt the same policy.

In this connection, it is interesting to note, however, that many danger areas have recently been --and it is reasonable to assume that many more will be--established. These areas, however, will be established as a means of protecting or warning aircraft in flight rather than protecting activities or facilities on the ground from aircraft. These new danger areas are being established over artillery firing ranges, aerial gunnery and bombing ranges, searchlight and barrage balloon training areas, congested training areas, etc. In other words, these danger areas may be defined as the air space above a designated area on the ground wherein the pilot, in entering, subjects himself and plane to unnecessary risk but does not greatly endanger the National Defense.

You might reasonably ask what is being done to protect high explosive plants, munitions depots and fortifications from subversive activities and sabotage by persons utilizing aircraft. The danger, of course, is reasonable, and I can assure you that the War, Navy, Justice and Commerce Departments--as well as the Office of Civilian Defense--are giving this problem considerable study.

New Control Method Recommended

The Interdepartmental Air Traffic Control Board in a recent report recommended that a more rigid control of non-scheduled civil flying be placed in effect as the most effective means of accomplishing this objective.

It was recommended that:

1. Within the limitations of constitutional authority all airports and landing areas be required to obtain a certificate of public convenience and necessity from the Civil Aeronautics Authority as a condition precedent to their operation, and that in issuing airport certificates particular attention be given to the qualifications of airport management personnel.

2. The Civil Aeronautics Board prepare regulations to be placed in effect, when necessary, by the Civil Aeronautics Administration governing the control of all non-scheduled civil flying by requiring individual flight authorization, from an airport manager or his authorized representative, similar to Air Corps departure and arrival reports.

3. The fingerprinting of all licensed airmen and the investigation of each plane owner and pilot by a law enforcement agency to determine nationality, place of birth, criminal record (if any), etc.

The Interdepartmental Board realizes the importance of a large civil aviation reserve of planes, pilots and aircraft factories to the National Defense and will assist the industry in every manner possible in working out its many problems during the present or any future emergencies. However, conditions change rapidly from day to day, and the civil pilot and plane owner must be prepared to adapt himself to new regulations and restrictions should they become necessary.

Long Range Program Planned

From what I have said, you may have gathered the impression that regulations, restrictions and more regulations are the only means by which the various Departments of Government are attempting to cope with the problems of air traffic control. This is not the case, for during the past five years at least one Department (the Airport Division of the CAA, Department of Commerce, of which I was formerly Chief) has been preparing long range, nation-wide airport and airway development plans, and airport layout plans of all types. In preparing these plans, the safe and efficient flow of air traffic has been a deciding factor.

The War Department has indicated its interest in civil aviation and the coordination of military and civil air traffic by appointing a representative on the Interdepartmental Air Traffic Control Board, and the creation of the Civil Aeronautics Section within the Air Staff of the Headquarters of the Army Air Forces.

Another important move to relieve the restrictions imposed on airports and private flying within the limits of civil airways in the vicinity of radio range stations and control airports, while at the same time increasing the safety of through traffic, has recently been made by the CAA upon the recommendations of the Interdepartmental Air Traffic Control Board. This plan provides for the establishment of a "Range Approach Channel" four miles wide (two miles each side of the center line of the oncourse signal of the range) for a distance of 15 miles from the radio station. This in effect means that the airways have been narrowed from 20 miles to four miles along this 15 mile section.

Length Depends On Terrain

It is realized that training or other flying activities--terrain, etc., may require the establishment of a Range Approach Channel more than 15 miles in length in some localities to provide space for local flying activities. This will be done where necessary, upon the recommendations of the Regional CAA Managers and the approval of the Administrator of Civil Aeronautics, after clearance by the Interdepartmental Air Traffic Control

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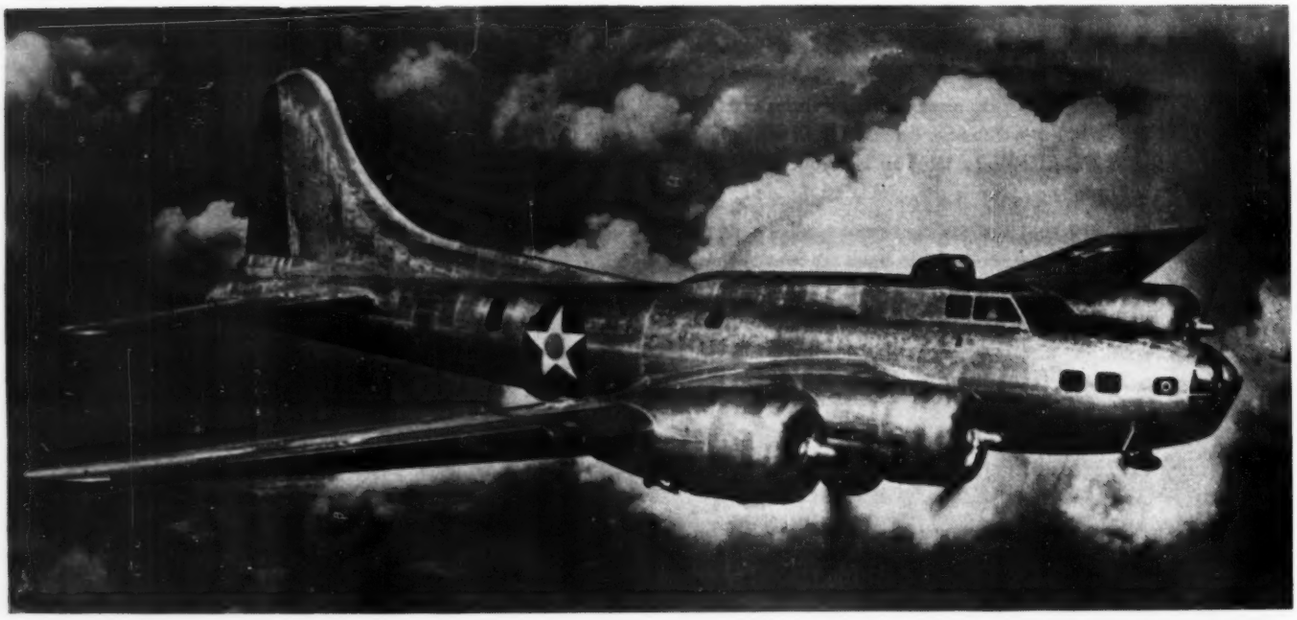
NEW SHIPS FOR THE ARMY AIR FORCES



The New B-17E, Latest Flying Fortress

Six new types of aircraft, ranging from a heavy bomber to three different makes of "flying flivvers" of the sport type, are undergoing tests by Air Corps engineers, headquarters of the Army Air Forces announced during the past month.

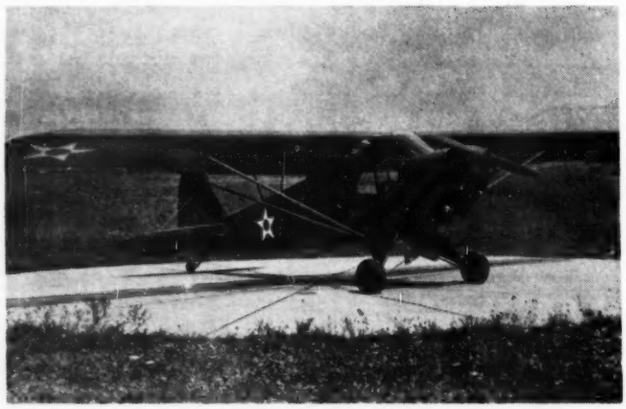
Most important of the new models is the B-17E, latest version of the "Flying Fortress." Under present plans the B-17E will be turned out in mass production by three manufacturers--Boeing, Douglas and Vega.

The new B-17E is approximately five feet longer and has greater gross weight and firepower than earlier models of the four-engined bomber. Power turrets both on the top and bottom of the fuselage and a stinger turret in the tail provide for resistance to attack from any direction. Enlarged horizontal and vertical tail surfaces make possible the increased size and weight.

Two New Cargo Planes

Two other new planes are the C-47, heavy cargo plane and the C-53, designed to carry a light cargo. Both are manufactured by the Douglas Aircraft Company. They are low-wing, all-metal monoplanes each equipped with two 1,200 horsepower Pratt and Whitney engines and capable of carrying 28 soldiers in addition to a crew of three.

Other recently-delivered Army airplanes are the YO-57, YO-58 and YO-59, all observation models. Each of these is powered by a single four-cylinder Continental motor developing 65 horsepower. All three are being tested for use as liaison ships for use in connection with ground units. The YO-57 is manufactured by the Taylorcraft Aviation Corporation, the YO-58 by the Aeronca Aircraft Corporation and the YO-59 by the Piper Aircraft Corporation.



The O-59 Observation Plane

Another In P-40 Series

Also undergoing Air Corps tests at the present time is the latest model in the P-40 series--the P-40F. This plane, manufactured by the Curtiss-Wright Corporation, is powered with a Rolls Royce "Merlin" engine. It is similar in appearance to the other planes of the P-40 series, all of which are powered with Allison engines.

The "Merlin" which will be used in the P-40F is a 12-cylinder V-type, liquid-cooled engine capable of developing 1,105 horsepower at an altitude of more than 20,000 feet. The plane itself will be heavily armored, will carry heavy firepower and will be equipped with leak-proof fuel tanks.

An Equipment Review

GERMAN AIRCRAFT AND ENGINES ANALYZED

THE ME-110 FIGHTER

A thoroughgoing, detailed analysis of a captured Messerschmitt ME-110 pursuit plane, one of the mainstays of the fighter arm of the Luftwaffe, has just been completed by the Vultee Aircraft Company. This airplane, shot down over England late in 1940, reached the United States last April. Despite a crash landing, it suffered comparatively little damage. R.W. Palmer, vice president of Vultee, prepared the following report on the ship.

The ME-110 is a twin-engined, low-wing all-metal three place land monoplane primarily designed as a fast multi-place fighter but readily adapted to light bombing and attack missions. The crew consists of a pilot, a radio operator-navigator and a rear gunner. The airplane weighs approximately 15,300 pounds fully loaded, has a wing span of 53 feet 4 inches, a length of 40 feet 6 inches and a wing area of 414 square feet. The high speed of the airplane is reported at 365 miles per hour, while the cruising range is 565 miles at 301 miles per hour. Power is supplied by two Daimler-Benz engines developing 1,050 horsepower each.

It was not surprising to find that German ingenuity had developed a design admirably suited to mass production and manufactured with excellent workmanship, although reports of shoddy construction were fairly prevalent. This has been done at little sacrifice of weight or aerodynamic efficiency.

Sub-Assembly Time Reduced

The air methods give an interesting comparison with our current practice in two particular respects. Larger, simpler one-piece component parts are used, reducing the number of man hours for sub-assembly work. As manufacturers in this country are getting larger quantity orders and consequently can spend more money on tooling and equipment this trend is increasing here.

Even more striking are the differences between their methods of assembling major components and ours. The junction points of the ME-110 have the connecting fittings reduced to a minimum and each fitting has considerable freedom of adjustment so that a fairly large discrepancy in accuracy of dimensions is easily taken care of. This contrasts with our method of a large number of attachment fittings unadjustable and requiring very accurate jigging.

The advantage, particularly when sub-assemblies

(Next page, Col. 2)

THE DB-601A ENGINE

Sometime ago the Wright Aeronautical Corporation had the opportunity of studying a Mercedes-Benz DB-601A aircraft engine, which had powered a Messerschmitt fighter. The power plant was torn down, bit by bit, with every part being subjected to a detailed analysis. Raymond W. Young, of the corporation, reports that a comparison between the major parts of typical high production German and American aircraft engines emphasizes that:

1. The materials used in the DB-601A are quite on a par with those used for similar purposes in the Wright Cyclone and other American engines.

2. There is no apparent sacrifice in the quality of material used in German engines up to the time, at least, when this particular one was produced, which is believed to be late in 1939.

While the engine first presented a somewhat discouraging appearance upon being unpacked, with its dull black finish and a dangling mass of wires, controls, fuel, oil and coolant lines, etc., it soon became apparent that good design, high quality and excellent workmanship lay behind its somewhat homely exterior, Mr. Young says. The general workmanship indicates the application of suitable machine tools, skilled operators and efficient personnel. Handiwork in polishing highly stressed parts is of the highest order, but no useless effort has been expended where there is not a direct return in increased reliability or performance.

Its general design reflects a ruggedness and reliability which has always characterized Mercedes-Benz products, while the relatively low rating indicates conservatism in output for the sake of improved reliability and increased service life.

Attention To Details

Careful attention has been paid, according to Mr. Young, to seemingly unimportant details which may mean the difference between success and failure in a given design. Specific reference in this connection is made to the doweling and serrating of joints to eliminate chafing and ultimate trouble; also to the shot hardening of stressed steel surfaces in intimate contact to reduce fretting and fatigue failures.

With possibly several minor exceptions, the design represents good mass production practice for the use of special purpose machine tools. While the grinding of gears is on a par with American

(Next page, Col. 1.)

ENGINE . . . practice, it is curious to note that highly stressed bolts do not have ground threads.

The high quality of the steels used, according to Mr. Young, is reflected in the marked absence of magnaflux indications and, with the possible exception of nickel, there is no evidence of any shortage of tin, chromium, tungsten, etc., at least at the time this engine was constructed. There is also a noticeable similarity in the application and composition of many materials with those used in American engines, the one exception being the almost total lack of magnesium alloys.

Another interesting phase of military operation which is reflected in the design of the DB-601A is the requirement for an unfaltering take-off with a stone-cold engine. This is particularly required of fighter and interceptor power plants. It has been reported that take-off with a cold engine in German fighting planes is accomplished on a few seconds notice.

A supplementary tank carries a mixture of ether and gasoline to be used for priming, while a secondary tank containing fuel mixed with a small percentage of oil is used during take-off and climb. The take-off is made almost immediately after starting the engine, and the switch to straight gasoline is not made until the normal operating temperatures have been attained.

The cooling medium used in the DB-601A is a mixture of 70 per cent. water and 30 per cent. ethylene glycol, Mr. Young states. In the case of fighters for high altitude operations, it has been reported that the ethylene glycol content is increased to 50 per cent.

Despite wishful thinking to the contrary, Mr. Young says, the performance of the DB-601A with respect to sea level and altitude output, fuel consumption and weight seems to be on par with other contemporary power plants of the same general type. Assuming that the engine under discussion is a model released for production during 1939, it is not unlikely that the current rating in 1941 is 1,400 horsepower, especially in view of the reports from abroad that the German planes are using fuel of 92 octane.

Since the impetus of war with its ever increasing demands for higher speeds and heavier bomb and armament loads, continues Mr. Young, dictates the necessity for power plants of greatly increased output, it is not at all unlikely that the basic design of the DB-601A has been incorporated into an "X" type engine. Such development would be the logical production setup utilizing known and service proven components, and accordingly may well be the 2,400 horsepower engine recently reported to be under construction in Germany.

The Mercedes-Benz Model DB-601A aircraft engine, he explains, is a development of the Daimler-Benz Aktiengesellschaft of Stuttgart, Germany, a firm which has been engaged in the manufacture of automotive and aircraft engines for over 50 years.

Restricted by the terms of the Versailles Treaty, German aircraft engine development had remained virtually at a standstill for a number of years, particularly in the high power output field. After the merger of Daimler and Benz, however, their aircraft engine activity was renewed, and this firm in 1928 produced a 12-cylinder "Vee," water-cooled powerplant of 800 to 1,000 horsepower known as the F-2 Model. During the succeeding years, the development of a 12-cylinder inverted "Vee" liquid-cooled engine was actively pursued and resulted in the production of the Model DB-600, with which several land plane speed records were broken.

From this chronological resume, Mr. Young points out, it will be observed that the development of a military powerplant for the fighting aircraft of the Luftwaffe involved a span of 10 years, and, like similar technical accomplishments in other countries, either in the field of aviation or other industry, was not brought about overnight.

Wall Street Journal

FIGHTER . . . are not built close to the prime contractor, would seem obvious.

Many people have had the impression that German planes were constructed largely of "ersatz" materials. The analysts found quite the reverse to be true. The highest quality material for the particular purpose was used in practically every case. Natural rubber, aluminum, magnesium, high-grade alloy steels, copper, nickel, manganese, chromium, molybdenum, tungsten, tin, titanium, vanadium and other materials appeared in quantities which indicated not the slightest shortage. (The fuel used was of 90 or 92 octane rating.) In the few cases where a material was omitted such as cadmium plating on small steel parts (bolts, etc.) it is suspected that an unnecessary refinement was eliminated to reduce man hours and not because of a shortage of the material.

Just as with materials the various equipment items--radio transmitters and receivers, engine flight and navigation instruments, power plant accessories and miscellaneous gadgets were used in abundance. If anything, the ME-110 was more completely equipped than our standards call for in comparable planes. In almost every case this equipment was well designed and built with precision.

The airplane probably went into production about three years ago and is still good by present day standards. Although the Luftwaffe has sent over the lines little of more advanced design the ME-110 should remind us that German technical skill is undoubtedly not asleep. American manufacturers cannot afford to do less than apply their knowledge and skill to the utmost.

Wall Street Journal

New Condensed Ration

Graham Crackers for Grounded Flyers

By Capt. B. D. Vitamin

A new-type emergency field ration for use by Air Corps personnel who are forced down in isolated areas has just been tested during a 100-mile hike across a New Mexican desert by a 14-man experimental expedition from Wright Field.

The new ration provides its users with 3,500 calories a day, and has an average weight of 12.5 ounces per meal. It was developed by the Quartermasters' Subsistence Research Laboratory at Chicago, and tested as the result of conferences between Capt. Paul K. Smith of the Aero Medical Research Unit at Wright Field, Dr. Ancel Keys of the University of Minnesota and Col. Rohland Isker and other officers of the Quartermasters' Subsistence Research Laboratory.

Meals are prepared in individual packages, of which the mainstay is "pemmican" biscuit containing virtually all the essentials of a balanced diet, and said by scientists to be far superior to any former type. In addition to the biscuit each meal package also contains two graham crackers, a stick of chewing gum and a number of special condensed foods in keeping with the time of day the meal is to be eaten.

Concentrated Lemonade

Special foods on the breakfast menu include a powdered soluble coffee with sugar, a supply of malted milk tablets and a small tin of veal loaf. Those on the luncheon menu include a ham loaf tin, bouillon paste in a tube and a supply of dextrose tablets. The supper package provides a pork-beef sausage, some pieces of chocolate fudge candy and tablets for making lemonade.

The experimental expedition which tested the new ration was headed by Maj. D.B. Dill. Accompanying Maj. Dill were Capt. Paul K. Smith and Lieut. T.R. Noonan, both attached to the Aero Medical Research Laboratory; four college professors and seven enlisted men from the Wright Field medical detachment.

Most of the trip was through the huge Santa Fe National Forest. Each hiker carried a 25 lb. pack, including two blankets, mess kit and three days' emergency rations. Weight losses of as much as three pounds were not uncommon for a day's march, but the loss was principally water, due to excessive perspiration in the hot New Mexican sun.

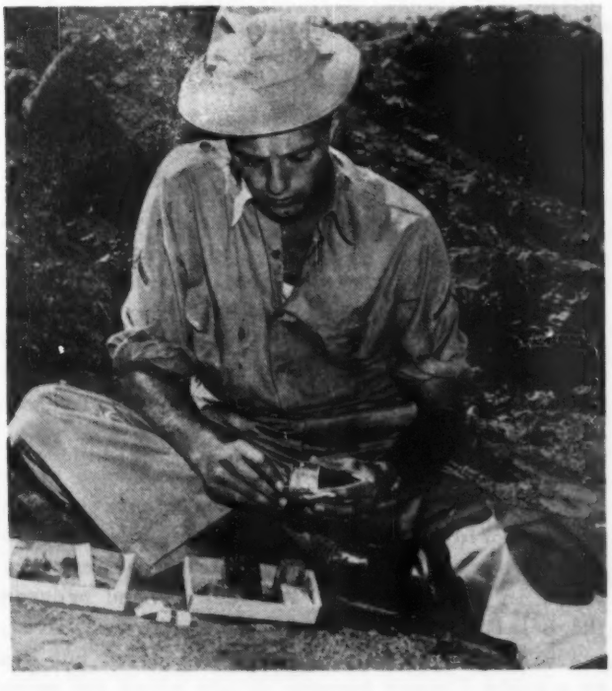
The party recorded travel of from 13 to 21 miles a day at altitudes ranging from 5,000 to 9,400 feet. Since the average pilot wears an ordinary oxford shoe, instead of a heavy marching shoe, the hikers wore oxfords and uniforms or pilots' and mechanics' coveralls.

The results of the experiment showed, according to Major Dill, that the new ration is "generally satisfactory." They also proved that it has a distinct advantage over the Army Type C field ration, which contains a beef stew which must be heated to be palatable. Although the new ration contains coffee and bouillon, which can be heated as a matter of choice, both proved very palatable when made with cold water.

The 3,500 calories a day provided by the experimental ration are about 50 per cent. more than the average sedentary person needs. For this reason, despite the hiking exercise, only one subject ate all his food each day.

The ration, as supplied to pilots, would probably be contained in their "jungle kit," a pack supplied to flyers whose duties take them over wilderness areas. It contains a machete, a knife, first aid supplies and food. Additional ration supplies would probably be carried in the plane.

The new ration is the product of many dietetic experiments, and may be changed still further on the basis of the field test.



Pvt. G. E. Hohenshilt Has a Condensed Breakfast

U. S. Planes and Engines

MR. LOVETT SAYS OUR'S ARE THE BEST

Airplanes of the Army Air Forces which participated in the recent Second and Third Army maneuvers in Louisiana constitute, from point of view of quality, "the finest air force in the world." So stated Robert A. Lovett, Assistant Secretary of War for Air, at a recent press conference in which the most important types of United States Army aircraft were discussed.

Mr. Lovett asserted that his statement was based on the best information available from the European war zone, and on reports made by Army Air Forces pilots who have had experience flying the latest foreign types of airplanes.

With respect to quantity the Assistant Secretary admitted that the United States still has a long way to go, but explained that "production is now beginning to roll, and our share of it from here on should enable us to equip combat units at the rate of about one squadron every other day." Even this rate, he said, would be increased in coming months.

In each of the main classifications of aircraft which took part in the Louisiana maneuvers, Mr. Lovett said that in maneuverability, fire-power, and performance American planes represent the last word in modern fighting equipment. The four main types of airplanes participating in the war games were dive bombers, light bombers, medium bombers and fighter planes. Although heavy bombers were not utilized in maneuvers, Mr. Lovett remarked that the United States also possesses what is considered to be the world's best in this category.

A-24 Used

Newest type of plane used in maneuvers was the A-24, a dive bomber which, according to the Assistant Secretary, is without equal. Two squadrons of this airplane, a version of the Navy SBD, were used in Louisiana. The A-24 is extremely effective against moving targets, such as motorized troops, and is used primarily in close conjunction with ground forces.

Light bombers used in the war games were of the A-20A type, which was called the "fastest bomber in the world today" by Mr. Lovett. Airplanes of this type are being supplied to the Royal Air Force in quantity under the Lease-Lend program. The British, who have named the A-20A the "Havoc," are using it not only as a light bomber, but also as a night fighter because of its speed and maneuverability.

Medium bombers participating in the Southern "exercises" were the B-25 and the B-26. Mr. Lovett described the B-25 as a medium bomber with the ability to carry a good load a long distance, and the B-26 as a medium bomber with the fastest cruising speed of any plane of its class. The B-25, which has a top speed only slightly under that of the B-26, possesses range, speed and load facilities superior to any foreign medium type bomber.

In the fighter plane class the outstanding Air Forces planes, all used in Louisiana, are the P-38, P-39 and P-40. Mr. Lovett described the P-38 as being the fastest military airplane in the world, with a speed of well over 400 miles per hour with a full military load. In addition to being the fastest, this plane is also one of the most heavily armed fighters in existence, mounting 37 mm. cannons and .50 caliber machine guns.

P-39 Fast

The P-39 was described as faster than the majority of the latest fighting planes of the world, and as having no equal as a middle-altitude fighter.

The P-40, another front-line middle-altitude fighter used extensively by the British, is being improved greatly in recent models the Assistant Secretary announced. The latest model to be delivered--which was used in maneuvers--is the P-40E. It is very maneuverable, gives fine performance at altitudes where bomber interceptions are taking place, and has higher horsepower and much greater fire-power than its predecessors. It mounts six .50 caliber machine guns and, according to Mr. Lovett, can run circles around outstanding foreign types of pursuit planes in combat.

Although not yet delivered in quantity to the Air Forces, the P-47, now in production, was described by Assistant Secretary Lovett as the fastest single-engined airplane so far developed, having done 680 miles per hour in a dive test, and over 400 miles per hour in level flight.

Answering charges made in some quarters that the A-20A, B-25 and B-26 cannot be flown at night, that it required over a mile to land them, and that it is impossible to bring them down on sod fields, Mr. Lovett stated that night flying and operating from sod fields had been part of the accelerated service test of each airplane. Further he said that the British have been using the A-20A as a night fighter, and have been taking off and landing this type repeatedly on small war-time fields at night.

A Veteran Retires

FRANK P. LAHM APPOINTED MAJOR GENERAL

One of the pioneers in Army aviation, former Brigadier General Frank P. Lahm, became a Major General last month when the nomination for his promotion, made by President Roosevelt on September 15, was confirmed by the Senate two days later. General Lahm's promotion took place two months before he will reach the statutory retirement age of 64.

General Lahm, now Air Officer for the First Army, began the career which led to his present high rank in 1901 when he was graduated from the United States Military Academy and commissioned a second lieutenant of Cavalry.

General Lahm's career has been a significant one. Since he first went to France to study aeronautics in 1905 he has been in the forefront in the making of aviation history--both civil and military.

Lighter-than-air as well as heavier-than-air flying has held the General's interest, and his name appears many times in the annals of progress in both of these fields. Not only was he the first Army airplane pilot, but also one of the first balloon pilots in military history. As far as existing records show he was, in addition, the first person in the military service of any country to make a solo flight in an airplane.

First Cross-Country

Outside of military aeronautical history General Lahm can list among his accomplishments the establishment with Orville Wright, of one of the first endurance records for aircraft, remaining in the air for one hour, 12 minutes and 40 seconds. Also with Orville Wright he completed the first cross-country flight, a ten-mile journey from Fort Myer to Alexandria, Virginia, and return.

In the field of lighter-than-air flying General Lahm's activities led to his winning an International Balloon Race (from Paris, France, to Flying Dorles, England) as far back as 1906. During the early part of this country's participation in the World War he was especially active in the lighter-than-air field, being attached to the Balloon Wing, Second Army, of the British Expeditionary Forces in France shortly after joining the A.E.F. While with this unit he participated in an attack which lasted from September 6 to October 1, 1917. He was also attached for a time to the Balloon Headquarters of the French Army at Soissons, France, and served with this group during the attack on Chemin Des Dames on October 23, 1917.

After receiving this experience with the British and French Armies, General Lahm returned to the A.E.F. to form the American Lighter-than-Air Service in November, 1917.

Major General Frank P. Lahm

Fought At St. Mihiel

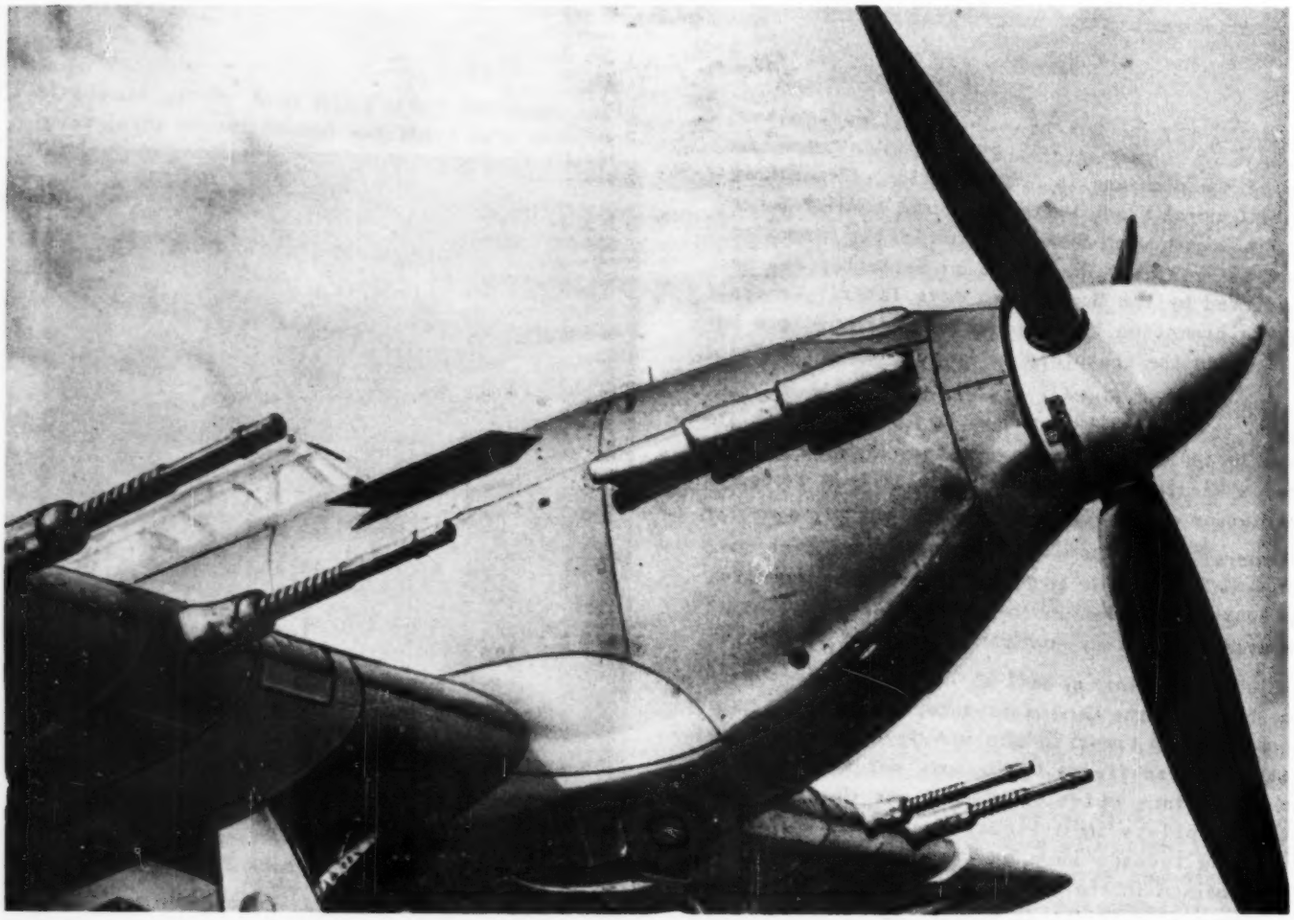
During February, 1918, his value out-grew the Balloon Service and General Lahm was made Chief of Staff of the Advance Section of the Air Service at Colombey-les-Belles, and later Air Service representative on the First Army General Staff. In this latter position he served at Toul during the period of the St. Mihiel and Meuse-Argonne Battles.

Before the war ended General Lahm had become commander of the Army Air Service, and later organized the Air Service of the Second Army. For his services during the war he was awarded the Distinguished Service Medal, the French Legion of Honor, and the Portuguese Order of Avis. At the War's end he had risen from the rank of captain to the temporary rank of colonel.

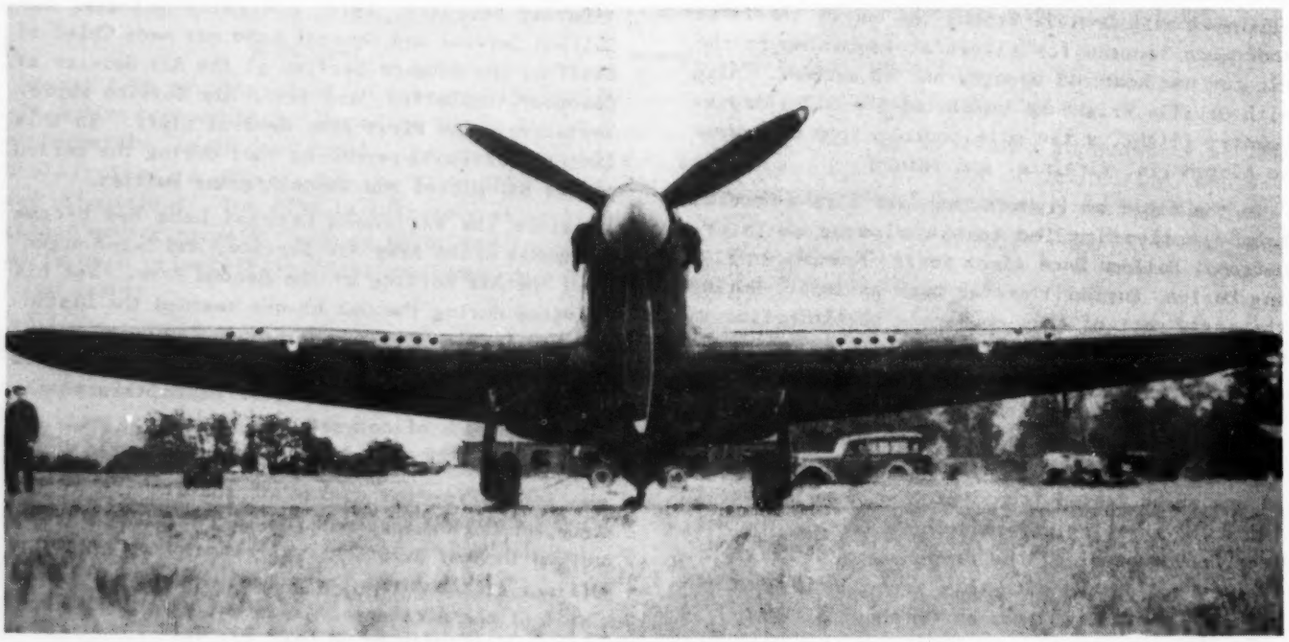
In 1919 the General returned to the United States and took a special course of instruction at the Army War College, graduating in 1920. He has been active in Army aviation ever since, serving as Air Officer of the Ninth Corps Area, Assistant to the Chief of the Air Corps, Assistant Military Attache

(Continued on Page 33, Col. 1).

NEW HURRICANE FIGHTER WITH SHARP TEETH



Here's a close-up view of the new British Merlin-powered Hurricane 11, showing its four 20 mm cannons



This one is equipped with 12 machine guns, six in each wing

New Marine Air Units

MORE FEATHERS FOR THE DUCKS

Aviation is in the process of taking an important place in the United States Marine Corps as plans for the activation of two complete Marine wings are being put into effect.

Latest steps in the chain of events designed to give the Marines a full-fledged air force have been the creation of the East Coast Wing Headquarters at Quantico, Va., and the approval of plans for the assignment of groups to the West Coast Wing at North Island, San Diego, Calif.

When present plans are put into effect the Marines will have two complete aviation wings--the East Coast and the West Coast--composed of five groups each. Two fighter groups, one scout bomber group, one bombardment group, and one utility group will constitute a wing. Utility groups will be used to transport men and materiel, and do other odd jobs for the tactical units. Each Marine group will be broken down into squadrons in much the same manner as those of the Army Air Forces.

Existing aviation combat units of the Marine Corps are assigned to Marine Aircraft Groups 11 and 21, which function under the new East Coast Wing at San Diego. At present each is composed of two fighter squadrons, two scout-bomber squadrons, commanded by Colonel Roy S. Geiger, the Group by Lt. Col. H. D. Campbell. The West Coast Wing is under Brig. Gen. R. E. Rowell; Lt. Col. L. G. Merritt commands the group.

Organization Will Grow

This present organization will grow into the planned organization of two complete wings as planes are made available by the Navy. Planes used by the Marine Corps are of Navy design, and are bought through Navy procurement machinery. Similarly, Marine pilots, gunners, and crews, although designated as Marines, are trained at naval pilot training centers.

Marine flyers, like all "Leathernecks", are trained to operate from both naval vessels and ground bases. Although their primary purpose is to function in conjunction with Marine ground forces and the Navy, the entire Marine Aircraft Group 11 participated in the Army's recent Louisiana maneuvers. They were being used in the Army's war games because of their background and experience in the technique of dive-bombing.

Unlike the Army Air Forces, Marine aviation wings will not maintain a separate organization but will function as part of a land division. According to present plans the East Coast and West Coast Wings will not be under a single head, but will be commanded separately under the control of the division to which they are attached.

MOONLIGHT AND ROSES

A one-man lonely hearts club and mail mart is in full bloom at France Field, in the Panama Canal Zone. Sergt. George Russell is it.

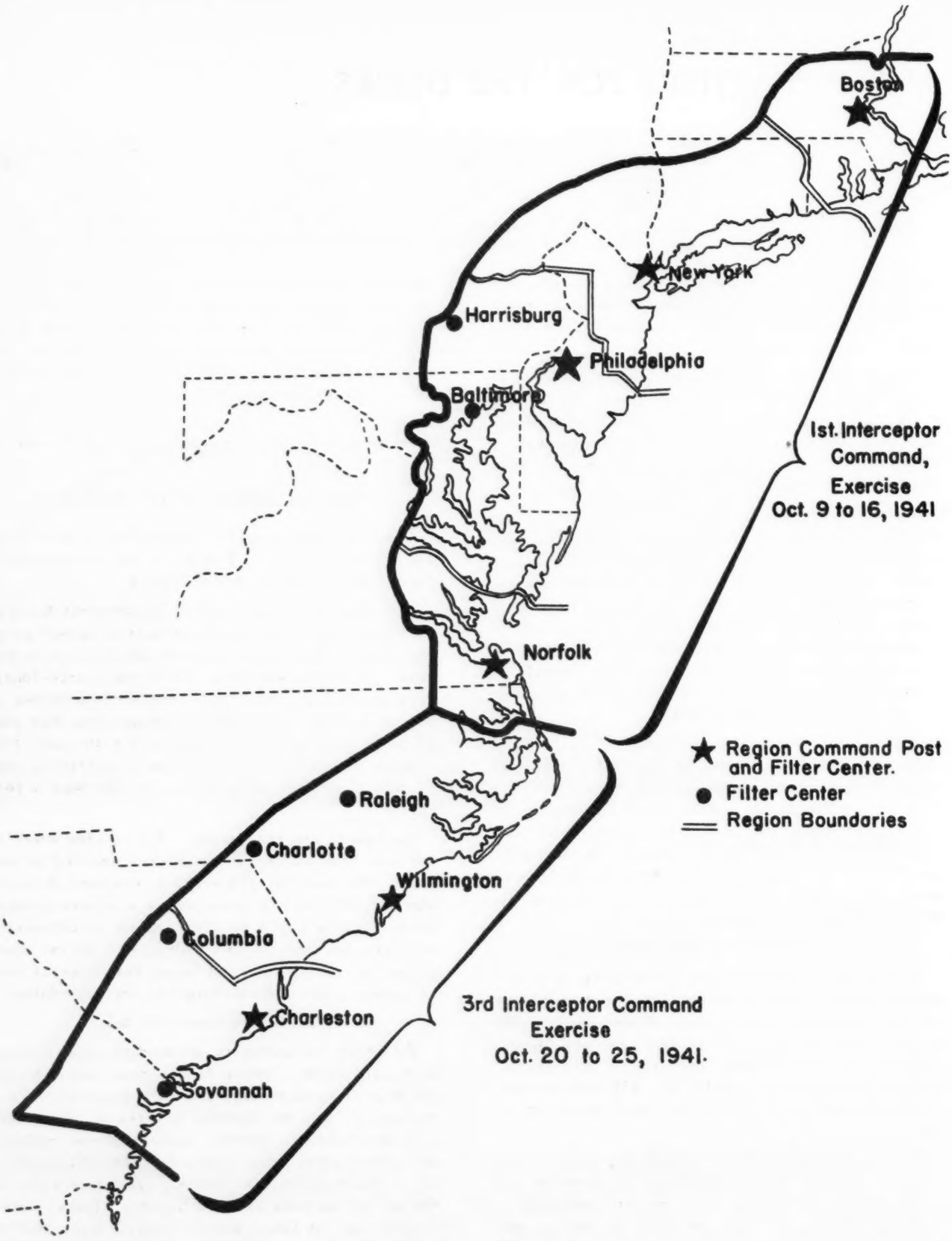
Attention was first called to Sergeant Russell last July when a puzzled postmaster investigated the soldier who received over 200 letters in two days. What the postmaster found was a once-lonely sergeant who one day sat down and wrote a letter or two to leading U.S. magazines suggesting that some of Uncle Sam's patriotic daughters might make life a whole lot easier for Uncle Sam's patriotic sons if they'd just sit down and write the boys a letter.

The result was staggering. Within a few weeks 48 letters from patriotic daughters arrived in one mail. The next day 153 arrived. Sergeant Russell, who had offered his services as a clearing house where letters could be distributed to interested soldiers, was swamped--but undaunted. He sat down, rolled up his sleeves and began the colossal task of indexing and distributing his correspondence.

California Leads The Way

The index has grown to astounding proportions. Each card shows a young lady's name and address, the type of correspondent she is interested in, her occupation, and her special interests. There are college students, clerks, stenographers, models, and almost every other type of occupation imaginable. The file contains letters from every state in the union, as well as from Canada, Alaska, Cuba, Hawaii, and the Canal Zone. Largest representation is from California, with New York close behind.

The response among France Field's soldiers is enthusiastic. Not a letter has gone unanswered, and outgoing mail from the field is keeping pace with Sergeant Russell's incoming batch, which is threatening to pass the 2000 per week mark.


Boston
New York
Harrisburg
Philadelphia
Baltimore
Norfolk
Raleigh
Charlotte
Wilmington
Columbia
Charleston
Savannah
1st. Interceptor Command, Exercise Oct. 9 to 16, 1941
3rd Interceptor Command Exercise Oct. 20 to 25, 1941.
Region Command Post and Filter Center.
Filter Center
Region Boundaries

Wholesale Mess Hall

Feeding Them by the Squadrons

By Lowell Limpus

A novel "mess regiment," which can toss a first-class meal into 18,000 men in less than an hour; that's Chanute Field's most notable contribution to the setup of our recently reorganized air force. And it has the oldtimers, as well as the Washington brasshats, watching the performance in goggle-eyed astonishment.

Nobody ever saw anything quite like it, as glowing letters from inspector generals attest. It's a brand new idea, and now the spectators are beginning to wonder if they can't put the whole outfit on wheels and take it into the field with an infantry division. For a "mess regiment," a big cooking organization composed of specialists, operating in this fashion, is something new under the military sun.

Out here, the commander of the regiment simply tosses a fully equipped mess battalion, complete with officers, noncoms, cooks and bakers, into one of three gigantic mess halls, and feeds endless cafeteria lines of men the tastiest food that this writer ever saw come out of an Army kitchen.

Only, being in the Air Corps, they call the outfit a "mess group" instead of regiment, and the battalions are designated "mess squadrons" to conform to the nomenclature of the flying units. But it's a regimental organization, just the same.

The man responsible for the innovation is Major Edgar T. Noyes, a two-fisted flying fighter, who has just been relieved as mess officer, in compliance with a War Department order that sends combat pilots back to airplanes. Succeeding Major Noyes in command of the group is Capt. Paul W. Summers, who acted as his superior's first assistant in building up the organization. And keeping an approving eye on the outfit is Col. R. E. O'Neill, commandant of the great technical school, which is turning out airplane mechanics and technicians in a slowly increasing torrent.

Gets Official Blessing

Washington placed its official blessing on the scheme, with a series of enthusiastic commendations of Major Noyes' work, when it sent him on to take command of an air base group located here, while the idea is already being adopted at the new technical schools that are just coming into existence at Biloxi, Miss., and Wichita Falls, Tex. Brig. Gen. Muir S. Fairchild, acting chief of the Air Corps, sent along a warm approval of the report of the inspector general on Noyes' achievement and a whole flock of other superiors added a chorus of praise in the form of indorsements to the official record. (The major, he noted, seems more than a trifle nonplussed by his sudden appearance in the spotlight--and this is perfectly natural, since nobody ever heard of a mess officer drawing tributes before.)

The Chanute Field mess group, whose mess officer is a member of the commanding officer's staff, consists of an administrative section, a supply section, a messing section and the three mess squadrons. Each squadron contains its own administrative and supply subsections as well as a messing division, divided into a food preparation, a dining hall and a refuse and garbage unit. And they handle food in assembly-line fashion.

The outfit normally numbers 1,020 men, of whom 600 are permanent members of the unit and 420 are KP's, furnished by various companies of enlisted men enrolled in the school. At present the basic cadre is down to 425 specialists, due to the fact that it had to furnish the nucleus of the mess

INTERCEPTOR EXERCISES MAP

Exercises of the First Interceptor Command got underway the second week of October in an area ranging roughly from Massachusetts to North Carolina, while the Third Interceptor Command was scheduled to take to the field toward the end of the month. The latter is functioning in the area from North Carolina to Georgia.

Each of the commands has divided the area to be organized for air defense into regions, as shown on the accompanying map. In each region an Information Center with Region Command Post has been or will be established, and Filter Centers---which make a preliminary collection of the reports---are located at each Regional Information Center and at other strategic points.

The exercises are, as pointed out by Lieut. Gen. Delos C. Emmons, commander of the Air Force Combat Command, actual tests of a permanent system of active air defense which is being worked out for the United States as rapidly as possible. Communication nets for the civilian observers are being set up and other details are being arranged. Planes operating in the first exercise alone were expected to fly more than 1,000,000 air miles during the eight-day program.

units sent to Biloxi and Wichita Falls. But it's still hitting on all six cylinders and handling amazing quantities of food in a fashion which dumfounds military men. The organization is so flexible that it can and does vary its service by as much as 4,000 to 5,000 men in the course of a single day, without batting an eyelash. (This is something in a school such as this, where classes numbering thousands are continually entering and being graduated.)

Food is handled in wholesale quantities with big business efficiency, the whole thing being controlled by an elaborate but efficient set of books, records and running inventories, which stir up a whale of a row if a cook bakes himself a private pie or a KP snitches an app'-. The Government pays 47½ cents a day for each soldier's food and the mess authorities deal with colossal sums, sometimes spending as much as $5,000 a day more than their income and making up for it during the week by quantity discounts.

Holiday Dinner Already Planned

They plan their schedules weeks in advance and the resulting meals stir the imagination. Next Thanksgiving's dinner menu is already coming down the line and Chanute Field privates may look forward to a feast. The mess group now has listed for that occasion shrimp cocktail, oyster stew, roast turkey, roast chicken, roast ham, cranberry sauce, giblet gravy, potatoes, peas, and corn, lettuce and tomato salad, cake, ice cream, lemonade, coffee, tea, after-dinner mints, assorted nuts, candy, oranges, apples, bananas, grapes, cigars and cigarettes. The powers-that-be say they hope they can afford to add a few "extra fixin's" between now and then.

Major Noyes worked for two years building his organization and the flexible system of controls, which is too complicated for description here. He planned the physical setup of the three big new mess halls and fought until he obtained them from a reluctant quartermaster department. Each is organized in sections, with food flowing from delivery wagons to store rooms, through the great kitchens with their batteries of electric stoves into the long preheated service stands, where the soldiers are served on aluminum trays. They circle back to waiting, condiment-equipped tables, surrounding huge coffee urns, and then pass out by way of the electric dishwashing machines.

Noyes planned it all out himself and solved innumerable problems in the process. He flew a bomber to Langley Field, Va., to snatch worthless aluminum from a salvage heap and made the big serving pans from which his cafeteria lines are fed. For weeks he slept in the mess hall, checking cooking routines and soldier food preferences. Securing data from the Surgeon General, he went in for balanced diets and learned to measure vitamins with a practiced hand. Part of his reward was contained in the recent widely publicized letter which a local soldier wrote President Roosevelt saying: "The system we have here for mess can't be beat in any other Army camp. It's a system that everybody likes. The food is better than I ate at home."

Major Noyes can't quite say that, though. He encountered his only major defeat when he tried to show Mrs. Noyes just how rolls should be baked. The major proved totally unable to reduce the proportions required for an 18,000-man recipe down to five-person family size, and the resulting odor of mixed spices drove them out of the house. Since that episode he lets his own kitchen severely alone.

N. Y. Daily News

NAVIGATOR TRAINING BROADENED

A recent increase in the annual training rate of aerial navigators to 5,250 has opened up a large number of vacancies in new navigator-training classes now being formed. The first class under the new program was organized on October 4--others will follow at three-week intervals.

Navigators receiving training are classed as aviation cadets, and must meet the same general requirements for appointment as do cadets taking flying training. Physical requirements, however, are slightly less rigid in that visual acuity of 20/40 in each eye correctible to 20/20 in both eyes is acceptable.

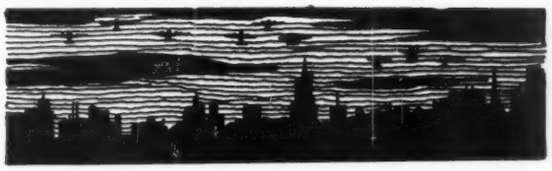
Other requirements provide that applicants must be unmarried, citizens of the United States, between the ages of 20 to 26 inclusive, and of good character, sound physique and excellent health. While undergoing training, navigator cadets receive $75 per month and a one dollar per day ration allowance, the same as pilot cadets.

The navigator training course lasts 30 weeks, 15 being spent at a navigation school, 10 at a reconnaissance school and five at a gunnery school. Air Corps navigation schools are located at Kelly Field, Texas; Mather Field, California and Albany, Georgia. There is also a civilian school operated under contract by Pan-American Airways at Miami, Florida. Upon the successful completion of the 30-week course cadets are commissioned second lieutenants in the Air Corps Reserve and receive flight pay. They are rated as "Aircraft Observers."

In accepting applications, graduates of accredited colleges and universities who have received a degree in engineering are taken first. Next come graduates of accredited colleges who have had, as a minimum, courses in plane geometry, college algebra and trigonometry. Preference is given to those whose mathematical work has also included analytical geometry and spherical trigonometry. A third priority is given to those applicants who have not graduated, but who have completed two years of accredited college work, and who have had the mathematics courses outlined above.

The Bristol Light Bomber

Night Fighter for the Royal Air Force



The Bristol Beaufighter, latest product of the famous Bristol concern, follows closely in general design and construction its forerunners, the Beaufort and Blenheim. In night fighting it has proved itself very successful. As a day fighter its most spectacular engagement was the recent low-flying attack on Catania aerodrome, in Sicily, when no fewer than 34 Macchi-200 monoplane fighters were destroyed without loss to ourselves.

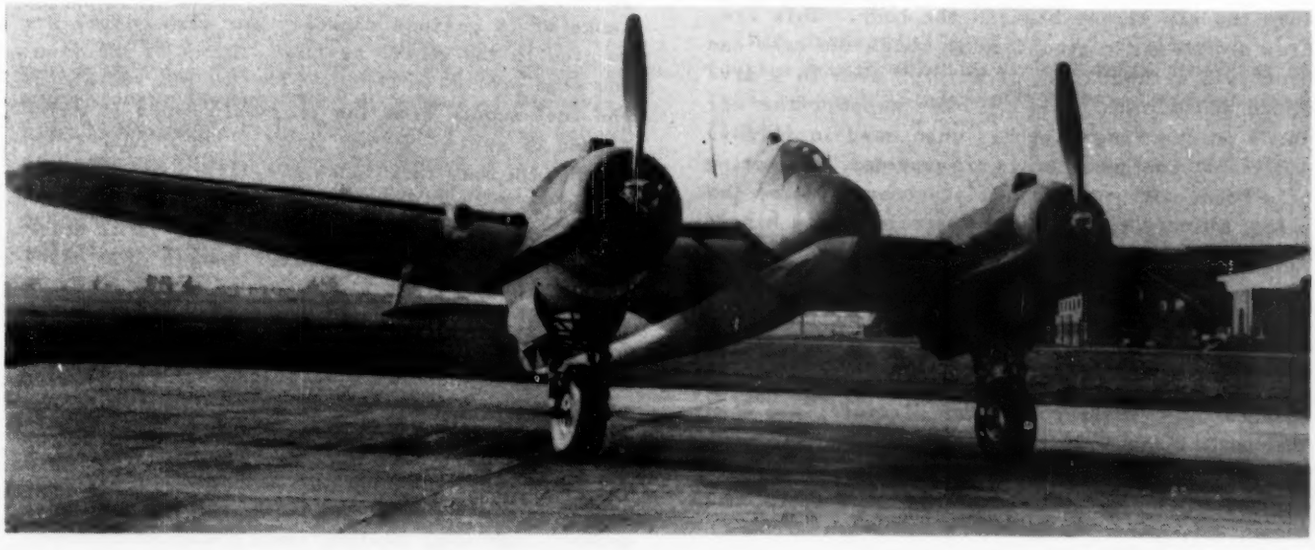
The Beaufighter is built to an ultra-modern specification for a twin-engined fighter. It is a high-performance midwing monoplane, all-metal with the exception of some of the control surfaces, powered by Bristol Hercules sleeve-valve engines. Classed as a day-and-night fighter, its outstanding features are speed, long range and hitting power. A crew of two is carried.

The principal dimensions and performance figures are: Span, 57 ft. 10 in.; length, 41 ft. 4 in.; height to top of rudder in rigging position, 15 ft. 10 in.; wing area, 451 sq. fet.; gross area, 503 sq. ft. All-up weight is 21,000 lb., of which no less than 34 per cent., or 7,200 lb., represents disposable load. Nominal top speed, at 14,000 ft., is over 330 m.p.h., and range, at an economical cruising speed of 200 m.p.h., is 1,500 miles. The sea-level rate of climb is 1,850 ft. per min., and at 15,000 ft. this drops by only 400 ft. per min. to 1,450 ft. per min. Service ceiling is 28,900 ft.

The armament is very heavy. Four 20 mm. shell-guns are carried in the floor of the fuselage and six machine-guns of rifle calibre are remotely controlled in the wings. Provision for a power-operated turret amidships is also made. The main fixed forward-firing armament is operated by the pilot, but the second member of the crew is responsible for reloading the shell-guns.

All three wheels of the landing gear are retractable, and all are hydraulically operated. The main wheels retract backward into the engine nacelles and are completely enclosed. The tail wheel comes forward into a recess in the underside of the fuselage. Electrical indicators in the pilot's cockpit show the position of all three units and, as a safeguard, there is the usual buzzer which operates if the engine is throttled down beyond a certain point while the undercarriage is still retracted.

The main landing legs are very robust, and the need for this is obvious when it is remembered that the wing loading is in the region of 46 lb./sq. ft. and the landing speed correspondingly high. Oleo-pneumatic shock absorbers are fitted, together with Dunlop pneumatically operated brakes. Automatic safety locks operate to prevent retraction while the machine is on the ground. Hand-operated landing pins are also provided for attachment from the ground. These are fitted with red flags which are visible to the pilot and must be removed before



The New Bristol Beaufighter

take-off.

As would be expected in a machine the main duty of which is night fighting, great care has been taken to get the controls nicely coordinated, accurate in operation and sweet to the touch. Pilots all speak very highly of the Beaufighter's controls. In layout they are normal. Ailerons and elevators are operated through the usual chains and cables by a pair of "spectacles" mounted on the top of the joy-stick. Gun-firing trigger and brake-operating valve lever are also mounted on the "spectacles" and come nicely to the thumbs. The brake lever also has a spring-loaded catch fitted to lock the brakes for parking. Pendulum rudder pedals, adjustable for leg reach, operate in parallel motion. All flying controls can be locked while the aircraft is parked.

Controllable trimming tabs are set in the trailing edges of the rudder, elevators and starboard aileron. The port aileron also has a tab but this can only be adjusted while the aircraft is on the ground. These trimming tabs are all operated by handles in the cockpit, and indicators are provided to show the position of the tab in relation to neutral. The pilot's seat is adjustable for height.

Entry and exit for the pilot and observer are by two specially designed hatches in the underside of the fuselage. That for the pilot is between the centre section spars, and the other is farther to the rear. These hatches are pivoted panels normally forming part of the underside of the fuselage. For use they swing to the vertical position, and use is made of a ladder attached to them. They are opened by a lever from the inside. Hand grips are also provided for convenience.

Bail-Outs At 400 M.P.H.

These hatches are also intended for emergency exit by parachute. By a quick-release each door opens so that part of the door protrudes outwards into the air stream beneath the body. This creates a dead-air region through which the crew can drop free without risk of injury, even in a dive up to 400 m.p.h. Steel cables support the air loads on the floor hatches when used in flight. Additional emergency exits are provided, consisting of a knock-out panel on the starboard side of the pilot, a hinged window above the pilot and a hinged hood above the observer.

An emergency electrical signaling system between the pilot and observer is also fitted, for use only if the need should arise to abandon aircraft. A push-button, operated by the pilot, warns the observer to prepare to abandon aircraft; and when the warning light on the instrument panel informs the pilot that the observer is ready, a separate switch is depressed to signal the observer to bail out.

For the crew's comfort a cabin-heating system is fitted, controlled by a lever on the port side, aft of the pilot. This operates a rotating louvre which admits hot air to the cockpit from the engine. Operational equipment stowed inboard is exceptionally complete, consisting as it does of navigation, identification and formation-keeping lights; landing flares; auto-recognition equipment; signal pistol; oxygen apparatus; cine-camera unit mounting; stowage for computors; map cases; fire extinguishers; first-aid outfit, and axe. Emergency rations are stowed in the rear fuselage, at the base of the observer's seat. Flying rations and water bottles are also carried. Other equipment provided includes the heating system, airscrew de-icing, oxygen apparatus and Lorenz beam-approach equipment. Provision is also made for carrying a four-gallon water tank for desert use.

Sleeve Valve Radial Engines

Turning now to the power plants, the two Bristol Hercules III's are mounted on the outer ends of the main plane centre section. As is well known, they are air-cooled radial engines with sleeve valves. The 14 cylinders are arranged in two rows of seven each, the cylinders of the rear row being opposite the gaps in the front row. Two-speed blowers and constant-speed airscrews are fitted. Each power unit is enclosed by a long-chord cowling of which the exhaust collector forms the leading edge. Controllable gills at the circumference of the trailing edge govern the air flow for cooling purposes. The swept volume of the engine is 2,360 cub. in. (38.7 litres) and the overall diameter 52 in. For take-off 1,400 h.p. is available, and 1,365-1,425 b.h.p. at 1,500 ft. At 15,000 ft. the power is 1,220-1,270 b.h.p. Electric starters and handturning gear are provided.

Fuel is carried in four separate self-sealing tanks with a total capacity of 550 gallons. Two tanks in the wing centre section each hold 188 gallons, and two smaller tanks--one in each outer plane--contain 87 gallons per tank. Separate oil tanks of 18 gallons capacity for each engine are mounted in the centre section. Ducts in the leading edge provide cooling air for the oil radiators. The fuel supply from the four main tanks is maintained by engine-driven pumps. For normal-range flights the four fuel tanks are filled and the outer tanks used first. When the outer tanks are empty, the inner tanks are turned on. This automatically turns off the outer tanks. The chief object of this arrangement is to get rid of the weight of fuel from the outboard section of the wing during the outward flight. Heavy weights so far out from the centre of gravity have an adverse effect on the maneuverability so necessary in an air battle.

A 24-volt, 500-watt generator on the starboard engine supplies the current necessary for the usual cockpit lighting, landing lamps, engine starting,

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THE MONTH IN REVIEW

by FALK HARMEL

Contracts For Airplanes

Within recent weeks the War Department, with the approval of the Office of Production Management, awarded contracts for airplanes and engines, together with spare parts therefor, in the aggregate sum of $859,584,140.61. Nine airplane manufacturers were awarded contracts totalling $817,108,757.14, as follows: Boeing Aircraft Co., Seattle, Wash., $337,447,957.86; Douglas Aircraft Co., Santa Burbank, Calif., $147,790,500.00; Bell Aircraft Corp., Buffalo, N.Y., $75,218,384.40; Northrop Aircraft, Inc., Hawthorne, Calif., $18,411,812.20; Vultee Aircraft, Inc., Downey, Calif., $14,518,707.60; BeechAircraft Corp., Wichita, Kans., $12,610,125.00; Cessna Aircraft Co., Wichita, Kans., $12,043,865.47, and North American Aviation, Inc., Dallas, Texas, $6,980,612.76

Figuring in the award of contracts totalling the sum of $42,475,383.47 for aircraft engines and spare parts were seven aircraft engine manufacturers, the largest award ($19,268,820.36) going to the Wright Aeronautical Corp., Paterson, N.J.

New Construction Projects

A step in the direction of establishing a new Air Corps repair depot was made with the selection of a site, embracing 2,400 acres, near Galena, Wash., seven miles west of Spokane. This depot will be under the control of the Maintenance Command and will serve Air Force units in the Northwest.

The construction of additional facilities was authorized for the Twin-Engine Flying School at Midland, the Advanced Flying School at Victoria, both in Texas, and the Twin-Engine Flying School at Lemoore, Calif. Mission, Texas, will be the site of a single-engine advanced school, the contract for the necessary construction work thereat totalling $4,090,617.40. The school at Midland, which will accommodate approximately 3,700 men, is expected to be completed by December 1, next.

Basic instead of advanced flying training will be given at the school at Lemoore, and the additional construction work is designed to take care of 630 aviation cadets.

A contract was awarded for the construction of Tullahoma Air Field at Camp Forrest, Tenn., for the use of the 128th Observation Squadron, and a weather station was authorized for the Army Air Forces at Pine Camp, N. Y. For the training of the personnel at the Army Air Base at Bangor, Me., a tract of land, embracing some 6,582 acres, was secured for use as a bombing range, also for flexible gunnery ground training, smoke dispersion training and the firing of fixed guns on airplanes.

Training

Sixteen army pilots from eight Latin-American countries began a refresher course at the Basic Flying School at Randolph Field, Texas.

A new phase of military aviation training was launched on September 6th with the opening at Maxwell Field, Ala., of the first Air Corps Replacement Center, where aviation cadets are to be processed and taught the fundamentals of soldiering before entering flying schools.

The Replacement Center at the headquarters of the Southeast Air Corps Training Center, Maxwell Field, is the first of three such centers projected in the United States. A similar project is planned for the Gulf Coast Air Corps Training Center at Randolph Field, Texas, and at the West Coast Air Corps Training Center at Moffett Field, Calif.

The new innovation is designed to familiarize aviation cadets with the many aspects of soldiering before they are subjected to the flying course, in order to relieve them of the task of trying to assimilate too many things at once. Past experience, officers stated, had proven that a program which "threw too many things at the cadet at once" caused an abnormal physical strain which caused a large percentage of rookies to "wash out."

This processing phase is in addition to the routine course which gives the cadet ten weeks of training each in elementary, basic and advanced flying.

National Guard Squadrons

Five National Guard Observation squadrons were inducted into the Federal service from September 1 to October 1, under authority granted by an Executive Order issued May 17, 1941.

The five squadrons are the 121st of the District of Columbia, the 122nd of Louisiana, the 123rd of Oregon, the 124th of Iowa and the 128th of Georgia. Induction of these five squadrons leaves two of those included in the Executive Order, above mentioned, still to be called up, namely, the 125th of Oklahoma and the 127th of Kansas.

New Organizations Created

The past month marked the organization of a considerable number of new organizations to augment

the rapidly expanding strength of the Army Air Forces. Sixteen new units were formed on September 1, and placed on the active list. All of these units are Headquarters and Headquarters Squadrons, five of them pertaining to the First to the Fifth Support Commands, inclusive, and the remaining eleven to the Twenty-sixth, Fifty-ninth, and the Sixty-fifth to the Seventy-third, inclusive, Observation Groups. At the same time, the Headquarters and Headquarters Squadrons of the Seventh Pursuit Wing, the Fifteenth, Sixteenth, Seventeenth and Twentieth Bombardment Wings were placed on the inactive list.

Twenty-eight new units were formed at nine Air Corps stations, 26 being school squadrons and the remaining two materiel squadrons (special). Five more school squadrons, the 555th to 559th, inclusive, were called into active service on September 1 at the Advanced Flying School at Albany, Ga.

A number of new units of other branches of the Army were constituted by the War Department for duty at Air Corps stations, these including 20 Ordnance companies and detachments to work with the Army Air Forces; five Ordnance Service Companies to be stationed at Chanute, Maxwell, Randolph, Moffett and Wright Fields, respectively; nine Signal Service Companies, one each to be stationed at the five fields just mentioned and the remaining four to be allotted to the First, Second, Third and Fourth Air Forces, respectively; and 22 detachments of Signal Service Companies to work with Army Air Corps schools.

Changes Of Station

Constituted August 30, 1941, at Westover Field, Mass., the Ninety-fourth Air Base Group, comprising the Hqrs. and Hqrs. Squadron and the 311th Materiel Squadron, will be moved in the near future to Presque Isle, Maine, where the Group will be utilized for the Ferrying Service Command.

Nine Air Corps units were designated for transfer from the Basic Flying School at Cochran Field, Macon, Ga., to the Basic Flying School at Shaw Field, Sumter, S.C.

Tulsa, Oklahoma, is the new station of the Hqrs. and Hqrs. Squadron, Air Corps Technical Training Command, formerly stationed At Chanute Field, Rantoul, Ill.

War Department orders were recently issued for the transfer of 26 Air Corps and Air Forces units to other stations, included among which were 20 school squadrons - units which play a vital part in the training program of the vastly expanding personnel of this branch of the service.

The 57th Pursuit Group (Interceptor) was transferred from Mitchel Field, N.Y., to Windsor Locks, Conn., and three air base groups, the 50th from Maxwell Field, Ala., and the 69th and 70th from Chanute Field, Ill., were transferred to Baton Rouge, La.; Biloxi, Miss., and Wichita Falls, Tex., respectively. Also transferred to Biloxi were the 310th School Squadron from Chanute Field, and the Hqrs. and Hqrs. Squadron and the 301st to the 309th School Squadrons, inclusive, from Scott Field, Ill.

To Wichita Falls, Texas, were transferred the Hqrs. and Hqrs. Squadrons and the 311th to the 319th School Squadrons, inclusive, from Lowry Field, Colo.

Between October 1 and December 1, 1941, 42 Air Corps units, of which four are stationed at Las Vegas, Nevada, and the remainder at various Air Corps fields in California (Mather, Moffett, Stockton, Gardner and Bakersfield), are to be transferred, as facilities became available, to new permanent stations. Thirteen units are slated for station at Victorville, two at Santa Ana, seven at Merced, ten at Lemoore, all in California, and ten at Higley, Ariz.

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Several months ago, air-minded college students, anxious to join Uncle Sam's rapidly expanding air force but desirous of receiving their training as a unit identified with their college, formed such units at the close of the 1941 spring term and received their primary flying training at various civilian elementary flying schools. Two units were organized at Texas A. & M. College and one each at the Virginia Military Institute, Washington and Lee, Baylor and Pittsburgh Universities. These students completed their 10 weeks' primary training on September 23 and were transferred to basic flying schools. The men from Baylor and Washington and Lee resumed their training at San Angelo, Texas, and those from the three other institutions at the "West Point of the Air" - Randolph Field, Texas.

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The Mississippi Institute of Aeronautics at Jackson, Miss., one of the civilian elementary flying schools under the Southeast Air Corps Training Center, completed its first year of operation without a serious accident and with no injury to pilot or ground crew personnel. In the seven classes which have been graduated from this school up to September 12, 1941, 275 of the total enrollment of 514 Aviation Cadets were transferred to basic flying schools, or 54%.

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The Air Corps Board, which has functioned at Maxwell Field, Ala., for a good many years, was recently moved to Eglin Field, Valparaiso, Fla.

This board, the only one of its kind in the Army Air Forces, was created for the purpose of acting on such tactical and technical problems as may be

(Continued on Page 34, Col. 2)

Your Life Insurance

SELF PROTECTION FOR AIR FORCES PERSONNEL

By Major Waddell F. Smith

THE Service Extension Act of 1941 was signed by the President and became a law August 18. This law gave the President authority to extend the periods of service of all military classes for periods not to exceed 18 months.

Section 3 of the act authorizes certain military classes whose periods of service are extended by the President, and who failed to apply for National Service Life Insurance or the full amount of insurance within 120 days of date of original induction into service, to apply for now and obtain the insurance without physical examination. The Act allows 120 days from signing or until December 16, 1941 within which time application must be made.

By this authority those who failed to apply originally for National Service Life Insurance or for the full $10,000 may now make application, provided their periods of service are extended.

Order Not All-Inclusive

The President on August 21, 1941 issued an executive order. The executive order did not extend the periods of service of all military classes, therefore, only the military classes whose service was extended by the order are authorized now to apply for National Service Life Insurance.

This article is presented to inform all military classes of their rights to insurance and not as an interpretation of the law affecting their periods of military service.

Some military classes are not entitled to apply for National Service Life Insurance in the current 120 day period from August 18 to December 16, 1941, therefore, it is vitally important that all individuals concerned be certain of their exact military duty status.

Each military class will be taken up separately and their rights to apply for National Service Life Insurance during the current period set out.

Regular Army

OFFICERS. No provision was made for regular officers in the United States Army inasmuch as it was not necessary by law to extend the periods of service of regular officers.

ENLISTED MEN. No provision was made for enlisted men in the regular army. The additional opportunity to apply for insurance within 120 days of August 18 was intended to be extended only to the emergency forces. Enlisted men in the regular army, however, are entitled to apply for National Service Life Insurance within 120 days of reenlistment without examination. If the current enlistment should be continued or extended, then application may be made within 120 days of such continuance or extension but subject to physical examination.

AVIATION CADETS and AVIATION STUDENTS. Special legislation enacted June 3, 1941 provided that all aviation cadets and aviation students shall be issued $10,000.00 or National Service Life Insurance, the premiums thereon being paid by the Government for the cadets and students. All classes of aviation cadets, assigned to pilot training, or as bombardiers or navigators, or to photography, engineering, armament, meteorology, or communications are included and the premiums therefor paid by the Government during training. Aviation cadets and aviation students are entitled either upon graduation or discharge from such status to continue their insurance by paying the premiums themselves.

Due to the foregoing, aviation cadets and aviation students are in no way concerned with the present period in which certain military classes may apply for insurance.

All aviation cadets and aviation students should familiarize themselves with War Department Circular no. 132, July 8, 1941, which may be found in any headquarters.

Reserve Officers On Extended Active Duty

AIR CORPS RESERVE OFFICERS. All such officers now on duty should examine their orders. If they were originally ordered to active duty under authority of Public No. 18, 76th Congress, passed April 3, 1939, and extension of active duty if any, authorized under the same Act, then such officers are not entitled to apply for National Service Life Insurance during the 120 day period from August 18, 1941. The periods of service of Air Corps Reserve Officers on duty under authority of Public No. 18 may be extended by authority of that law for periods up to a total of seven years.

As there was no necessity, the executive order of the President, which extended the periods of military service of various classes, as authorized by the Service Extension Act of 1941, did not extend the periods of service of such Air Corps Reserve officers. Inasmuch as the executive order did not make such extensions, therefore the current 120 day period for making application for insurance does not apply to such reserve officers.

It must be remembered, however, that the already

existing law entitles any reserve officer to a new 120 day period within which to apply for National Service Life Insurance, said period commencing as of the date on which reordered to active duty or the present tour is continued or extended. Upon being reordered with an intervening separation from service, application for the insurance is not subject to physical examination. If the present tour of duty is continued or extended, then a satisfactory physical examination must accompany the examination.

RESERVE OFFICERS, GENERAL. The reserve officers of all arms, branches, and services that are now on duty, excluding all but a limited number of Air Corps Reserve officers and a limited number of reserve officers of other branches, have been ordered to active duty under authority of Public No. 96, 76th Congress, passed August 27, 1940. The insurance provision in the Service Extension Act of 1941 extends to all such officers on active duty a new opportunity to apply for National Service Life Insurance within 120 days of August 18, 1941, subject to the following limitation. Only such reserve officers may apply whose current period of active duty expires within said 120 days and whose active duty is continued or extended within said 120-day period. Applications also must be made within the 120 day period.

National Guard In Federal Service
Selective Service Enrollees Now In Service
Regular Army Reserve
Enlisted Reserve Corps In Federal Service

The periods of service of all of the above military classes were extended by executive order by virtue of authority granted to the President in the Service Extension Act of 1941.

Although provision is made in the executive order for blanket extension of all of the above classes of military personnel, the executive order authorizes the Secretary of War to release from active service such persons or units as may be released without impairment to the interests of national defense, the releases to be effected upon completion of the original twelve months of training and service.

The Service Extension Act (approved August 18, 1941) granted to all military classes whose periods of service, training, active duty, etc. were extended under authority of the aforementioned law, a new opportunity to apply for and obtain National Service Life Insurance. Therefore, the National Guard, Selective Service, Regular Army Reserve and Enlisted Reserve Corps all are eligible to apply within 120 days of August 18, 1941, and no physical examination is necessary.

Individuals who may have previously applied for less than $10,000.00 insurance may in this present 120 day period apply for any additional amount, provided the total amount held will not exceed $10,000.00.

The four above mentioned classes of military personnel are entitled to apply for insurance under this provision even though their periods of service may not actually be extended at the completion of the current year of training or service. It is necessary, however, that application be made while still in active service and on or before December 16, 1941, the end of the 120-day period.

In addition to the privilege of applying within 120 days of August 18, 1941 without physical examination, all personnel of the four above mentioned classes whose periods of service, training, or active duty are extended upon completion of present period of service, training, or active duty, are entitled to apply for National Service Life Insurance within 120 days of such extension, but subject to satisfactory physical evidence of insurability. Also any individuals in these four classes, who may be mustered out of service or relieved from active duty and who may subsequently be ordered back into active service, are entitled to a new 120 day period within which time application may be made for National Service Life Insurance. The 120 days period begins on the date of reentry into the service and no physical examination is required.

Retired Officers And Enlisted Men

RETIRED OFFICERS. Inasmuch as retired officers who have been ordered back into the service are not ordered for any limited period of service, it was not necessary to extend their periods of military service, therefore, they are not eligible to apply for National Service Life Insurance in the 120 day period to December 16. All such officers are, however, eligible to apply for National Service Life Insurance without examination within 120 days of date on which originally ordered back into service.

RETIRED ENLISTED MEN. The Service Extension Act authorized the President to extend the periods of service of retired enlisted men who are ordered back into active service. The President did by executive order extend such periods of service, therefore, retired enlisted men now in active service are entitled to apply for National Service Life Insurance without examination during the 120 day period commencing August 18, 1941 and expiring December 16, 1941.

One Year Enlistments
(Army Of The United States)

The President's executive order did not extend or continue the periods of service of the above one-year enlistments. As these classes of military service were not extended, no additional opportunity to apply for National Service Life Insurance is applicable.

General Remarks

War Department Circular No. 192, issued September 16, 1941, which may be found in any headquarters, furnishes information as to the rights of military personnel to this new 120-day period for obtaining insurance. It also sets out instructions for mak-

ing the application. It is highly important that the application be completed in accordance with the instructions in the circular.

Any individuals who may be in doubt about their military status and rights to apply for National Service Life Insurance should make application before December 16, being careful to comply fully with all instructions contained in War Department Circular No. 192. Those applicants then determined to be ineligible by the Veterans Administration will be declined.

The value of National Service Life Insurance and the importance of its being applied for by all military classes cannot be stressed too much. No charge is made against the premium deposits of the insured to cover administration cost. The entire expense of administration and overhead of National Service Life Insurance is paid out of general appropriations for the Veterans Administration. Whenever a death claim is paid and the cause of death is attributable to the extra hazards of the service either in line of peace or war, the claim is paid out of a separate appropriated fund and no such claims are paid out of the premiums deposited by the insured.

Pay your premiums by deduction monthly from your pay. (War Department A.G.O. Form No. 29-3). Although it is permissible to pay premiums monthly, quarterly, semi-annually, or annually by check or money order, deduction from pay is surest. When once the deduction from pay is properly commenced then the insurance is sure to be kept in force. Many situations may arise in times of emergency which may separate a man from contact with his personal business affairs, causing temporary inattention to premiums falling due. The insurance, therefore, might lapse when it is needed the most unless premiums are deducted from pay.

All present holders of National Service Life Insurance should give thought to converting their insurance. Conversion is permitted any time after one year and before expiration of the 5 year term. Rates and descriptions of the converted policy forms are contained in War Department Circular No. 149, issued December 10, 1940. This circular may be found in any headquarters. National Service Life Insurance is not only unexcelled protection while in service, but is of such superior permanent value that all holders should plan on converting sooner or later so that they may continue to have the benefit of the insurance throughout life.

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Blanket permission for radio stations to broadcast without restriction the familiar song, "The Army Air Corps," was given recently by the American Society of Composers, Authors and Publishers. Provisions of the agreement are that the song, composed by Robert Crawford, may be played at any time during the emergency.

CIVIL LICENSE REQUIREMENTS

Simplification of the procedure for obtaining civil pilot licenses has been effected for military pilots, according to recent announcements by the Civil Aeronautics Administration and the Air Corps Training and Operations Division. The changes were brought about at least partly through the efforts of Lt. Col. David Grant of the Air Corps Medical Division and Lt. Col. C. L. Bissell of the War Plans Division.

Under the new procedure military pilots may obtain an initial or renewal certificate simply by filing a statement from higher authority that they are currently on flying status, and a statement from operations personnel showing types, weights, and horsepower of aircraft piloted, and the hours in each. There is no expense attached if the necessity of a physical examination is avoided.

The application method is part of a general simplification of the system used by the Civil Aeronautics Administration in the rating of pilots. The new system is based on the type, class, and horsepower of the aircraft rather than on the type, weight, and classification of the engine, a method which has demonstrated numerous inconsistencies in the past.

"Unconventional" Type Listed

The revised C.A.A. regulations divide aircraft into the following types: airplanes, autogiros, gliders, and lighter-than-air. Individual ratings must be obtained in each type. Airplane pilots are further rated according to classes of airplanes and horsepower. Airplane classes are single-engine, land; single-engine, sea; multi-engine, land; multi-engine, sea: and "conventional."

Horsepower ratings are based on a range which is 50 percent less to 50 percent greater than the rated horsepower of the airplane in which the pilot demonstrates competence. The only exception to this rule is in the class of airplanes having less than 80 horsepower, which are considered as a group. Because of this "80 horsepower group" provision a pilot demonstrating competence in a 60 horsepower ship is licensed for operation of airplanes ranging from 0 to 80 horsepower, but not from 30 to 90, such as might normally be expected under the 50 percent rule. Likewise, competence at 100 horsepower rates the pilot only for 80 to 150 horsepower, not 50 to 150.

Another of the new regulations provides that a pilot who becomes eligible for two separated horsepower ranges is also made eligible for all intermediate horsepowers. This means that the pilot is rated from the lowest to the highest horsepower applicable, and is licensed to operate all planes of the same class between these two limits.

MANEUVERS . . . *(Continued From Page 4)*

including 315 combat aircraft and 132 observation airplanes. Of the combat types, there were 39 medium bombers, 44 light bombers, 36 Navy dive bombers, 36 Navy fighters and 160 pursuit airplanes. Personnel strength totaled 7,946, including all service personnel, with a commissioned strength of 976 officers.

Personnel and materiel strength of the Second Air Task Force was almost equal to that of the Third Air Task Force.

Missions involving various numbers of combat aircraft, from one to as many as 80 in a single mission, were flown.

Although the maneuvers were planned with an eye to the utmost possible realism, there were some inescapable artificial situations. There were insufficient airdromes in the maneuver area and vicinity and two fields, one at Camp Beauregard and one at Natchitoches, were located along the border between the hostile armies and were declared "neutral," being used even when in the hands of the enemy. They were not subject to hostile attack, as were all other airfields within the maneuver area.

Another artificial situation, deliberately created, permitted the Red Second Army to concentrate adjacent to the international boundary--the Red River--while the Blue Third Army was restrained some 50-60 miles to the south. This permitted the Reds to invade Blue territory without necessity of forcing a river crossing in early stages of the maneuvers. This greatly offset the power of the Blue aviation, which under normal conditions might have held the Reds north of the Red River for many days, even in the absence of Blue ground support.

Bad Weather

Both phases of the maneuver opened under extremely bad weather conditions. Just prior to the opening of each phase, a sub-tropical hurricane, following erratic courses across the Gulf of Mexico, became so threatening that the greater part of the Blue aviation was moved out of the maneuver area into Alabama, Mississippi and Texas. Aviation, during both phases, operated initially under handicaps of turbulent winds, badly unsettled weather conditions and soft, muddy landing fields.

A typical day's activities by the Third Air Task Force resulted in the theoretical expenditure of the following ordnance: 81 500-lb. demolition bombs, 354 100-lb. demolition bombs, 140,000 .50 caliber ammunition and 162,000 .30 caliber ammunition.

Two attacks were made by parachute troops, which were assigned first to the Blue Army and then to the Red forces. The two attacks were made by Company A, Five Hundred and Second Parachute Battalion. The first attack, made against the Reds in the vicinity of Clarence, Louisiana, was tactically the more successful of the two. The first tactical parachute attack made by United States Army troops, this assault came as a complete surprise and had a paralyzing effect on vital Red operations in the critical center area of the Red lines. Thirteen transport planes of the C-33, C-39 and C-50 types were used, each carrying 12 to 14 soldiers and complete fighting equipment, which also was dropped by parachute. This equipment included .30 caliber machine guns, 60-millimeter mortars, .45 caliber sub-machine guns, .30 caliber rifles and enough ammunition for a full day's fighting. Each man carried a pistol and two hand grenades as he dropped. Strong Blue Pursuit support was provided and an abortive Red air attack on the paratroops was beaten off.

Air Operations Increase

As the weather cleared, the intensity and scale of the air operations increased. As an example of the intensity of the Blue aerial assault, it may be noted that in the two hours between 11 a.m. and 1 p.m. September 18, the Blue warplanes expended 280,630 rounds of .30 caliber ammunition, 238,830 rounds of .50 caliber ammunition, 937 37-millimeter airplane cannon shells, 834 100-pound demolition bombs, 131 500-pound demolition bombs and 214 recognition signals.

A recapitulation of aircraft ammunition expenditures by Blue Aviation during the five days' operations of the first phase shows a total of 4,920 100-pound demolition bombs; 514 300-pound demolition bombs; 725 500-pound demolition bombs; 12 1,000-pound demolition bombs; 2,181,000 rounds of .30 caliber armor-piercing and tracer ammunition; 1,356,000 rounds of .50 caliber armor-piercing and tracer ammunition and 3,000 rounds of 37-millimeter high-explosive airplane cannon shells, or a total expenditure of 1,025 tons of aircraft ammunition.

The resupply of airdromes by Army Depots during the five days involved movement of 871 tons of ammunition. This work required the services of 438 trucks and of 1,797 men to load trucks and 1,040 men to unload trucks. Resupply was completed every night under cover of darkness.

The name "Task Force" given to the air units participating in these maneuvers is highly appropriate. The Air Task Force has been charged with the responsibility of furnishing air support to the Army, not in the strategic sense that a bomber command might demolish factories or railroads far in the enemy interior, but to furnish the identical type of support that German panzer and motorized columns receive from their Stukas and that the Allies did not receive from their aviation during the brief battle of France.

This support may be visualized as being a prompt application of air power to remove obstacles or resistance preventing ground forces from gaining their objectives.

LAHM . . . *(Continued From Page 19)*

for Air at the American Embassy in Paris, Military Attache at Paris, and Second Corps Area Air Officer. He also organized and for a time commanded the Air Corps Training Center at San Antonio, Texas. At present General Lahm is Air Officer for the First Army, with headquarters at Governors Island, New York.

Served With Cavalry

General Lahm's career in the Cavalry was just as active as his later career in the Air Service and the Air Corps. He served with the Cavalry in Cuba, Jamaica, Panama, and the Philippine Islands, and participated in actions against bandits along the Mexican border. He remained in the Cavalry until 1916, when he was appointed Secretary of the Aviation School at San Diego, California.

Especially appropriate in the case of General Lahm is the citation which went with the award of his Distinguished Service Medal:

"For exceptionally meritorious and distinguished services. A balloon pilot of marked ability and scientific attainments, he rendered valuable services to the American Expeditionary Forces by his untiring devotion to the innumerable problems which faced the Air Service during its organization in France. His broad experience in aeronautics played an important part in the formulation of policies of the Air Service and was reflected in its successes during the St. Mihiel offensive and subsequently in the operations of the Second Army."

DISCHARGES FOR ENLISTED MEN

Release by the Air Forces of selectees over 28 years of age, and of both selectees and three-year men who desire dependency and similar discharges has been authorized by the Air Staff and the Adjutant General.

Under instructions issued by the Air Staff these releases will not exceed 15 per cent. of the authorized strength of any organization affected.

It is expected that relatively few men will be released by the Air Forces under the new policy because of current promotion opportunities and because most selectees assigned to the Air Forces reached their stations during the past two months. Of this group few have completed their one-year enlistment and few are over 28 years of age.

It is also believed that very few regular enlisted men will request discharges upon the completion of their three-year enlistments because promotion opportunities are so good at the present time.

PUBLISHER OFFERS PRIZES

A $2,500 contest among aviators---commercial, military and naval---for the best autobiographical booklength manuscript has been announced by Alfred A. Knopf, Inc., "in the belief that there are few subjects as interesting and unhackneyed as that of flying." Any Army Air Forces officer or enlisted pilot is eligible to submit a manuscript.

"I am looking for an authentic book of flying experiences," Mr. Knopf writes. "It neednot take the rigid form of a conventional autobiography---although it may do so if the writer feels that his story fits that pattern better than the less formal one of a volume of reminiscences. Above all, however, it must be true--even, in so far as practicable, verifiable---and it must be interesting---that is, in style as well as substance clear, untechnical and provocative enough to appeal to a wide general public."

All manuscripts should be submitted to Curtis Brown, Ltd., 347 Madison Avenue, New York city, who shall be exclusive agents for both the authors and the publisher, and should be postmarked not later than June 30, 1942. Only typewritten manuscripts, double-spaced and not less than 80,000 nor more than 150,000 words long, will be considered. Further details may be obtained from Curtis Brown.

ENLARGED BLUEPRINT PLANT

The Air Corps blueprinting plant--largest in the world--was placed on a 24-hour operating basis late last month in order to meet the ever-increasing needs of the Air Forces expansion program.

The blueprinting establishment, part of the Drafting and Records Branch at Wright Field, Dayton, Ohio, will turn out more than 3,000,000 blueprints monthly under the new schedule. Ordinary peacetime production is approximately 25 000 monthly.

For the construction and maintenance of an average medium-sized bomber approximately 14,000 blueprints are needed. These show in detail every part and every installation in an airplane all the way down to the smallest rivet.

Blueprints are used for the procurement of airplane accessories and spare parts, for the maintenance of planes and for all equipment needed for the proper operation of tactical units in the field. For these purposes they are sent to all Air Corps depots and fields by the Wright Field branch.

The Drafting and Records Branch occupies a total of 38,400 square feet in the Administration Building at Wright Field, and employs 425 people.

TRAFFIC . . . *(Continued From Page 13)*

Board.

Training activities and acrobatics will be permitted within the limits of the airways outside the four mile Range Approach Channel. However, no acrobatics will be permitted within the four mile channel or within the three mile airport control zone and all flight maneuvers outside the Range Approach Channel, but within a ten mile radius from the center of the control airport, unless on an approved flight plan, shall be performed in a manner and over an area prescribed by the Regional CAA Manager after joint consultation with all aviation interests concerned, and after approval by the Administrator of Civil Aeronautics. This procedure contemplates no changes in existing regulations for flight plan procedure or flight within control zones.

Unless on an approved flight plan, all aircraft crossing or entering the Range Approach Channel must do so at an altitude of less than 1,500 feet above the ground. All altitudes above 1,500 feet above the surface of the earth and below 17,000 feet sea-level over the Range Approach Channel are reserved for aircraft approaching, departing from, or passing over, the control airport.

Careful and intelligent planning of our airport and airway systems are the only sure means of preventing costly and dangerous air traffic complications in the future.

BEAUFIGHTER . . . *(Continued From Page 26)*

radio, gun firing, fire extinguishers and other electrical equipment. The wireless installation is mounted on the port side in the fuselage between the centre plane spars, and comprises a transmitter and receiver, operated by the pilot by means of remote controls. Intercommunication telephones between the pilot and observer are provided. Navigation, identification and formation-keeping lights are controlled by a signaling switchbox on the starboard side of the cockpit, which provides for independent or simultaneous use of the upward and downward lamps, either through a telegraphic key for Morse or, alternatively, a steady illumination. Intercommunication signaling between the pilot and the observer is provided by a buzzer and a white light on the observer's instrument panel in the rear fuselage, operated by a push-button on the pilot's instrument panel. The observer can also operate a lamp on the instrument panel to attract the attention of the pilot. The gyros of turn and bank indicators and the artificial horizon are driven by one of two vacuum pumps, which are fitted to each engine. In the event of the failure of one pump the other can be selected by means of a change-over control on the port side of the instrument panel. The vacuum available is shown on a gauge beside this control. Compressor and cylinder are designed to operate at a pressure of 450 lb./sq. in. After passing the reducing valves it is 220 lb./sq. in. The differentially-operated wheel brakes are also operated pneumatically.

Condensed from FLIGHT

REVIEW . . . *(Continued From Page 28)*

submitted to it by the Chief of the Air Corps or such as it may originate in the course of experiments; also to test and evaluate new equipment, means and devices designed to improve the efficiency of the Army Air Corps.

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Acquisition of two large tracts for use by the Army Air Forces was authorized by the War Department last month. The largest, comprising 6,582 acres, will serve as a bombing range and a gunnery and smoke dispersion training area for the air base at Bangor, Maine. The other will consist of 260 acres and will be used for the establishment of a fourth echelon base motor shop at Stockton, California.

●

Scott Field, the 2,500-acre Air Corps Radio Training School station at Belleville, Ill., is included in the list of Army posts, camps and stations designated as permanent installations, and will be maintained subsequent to the present emergency for a period of 20 years or more.

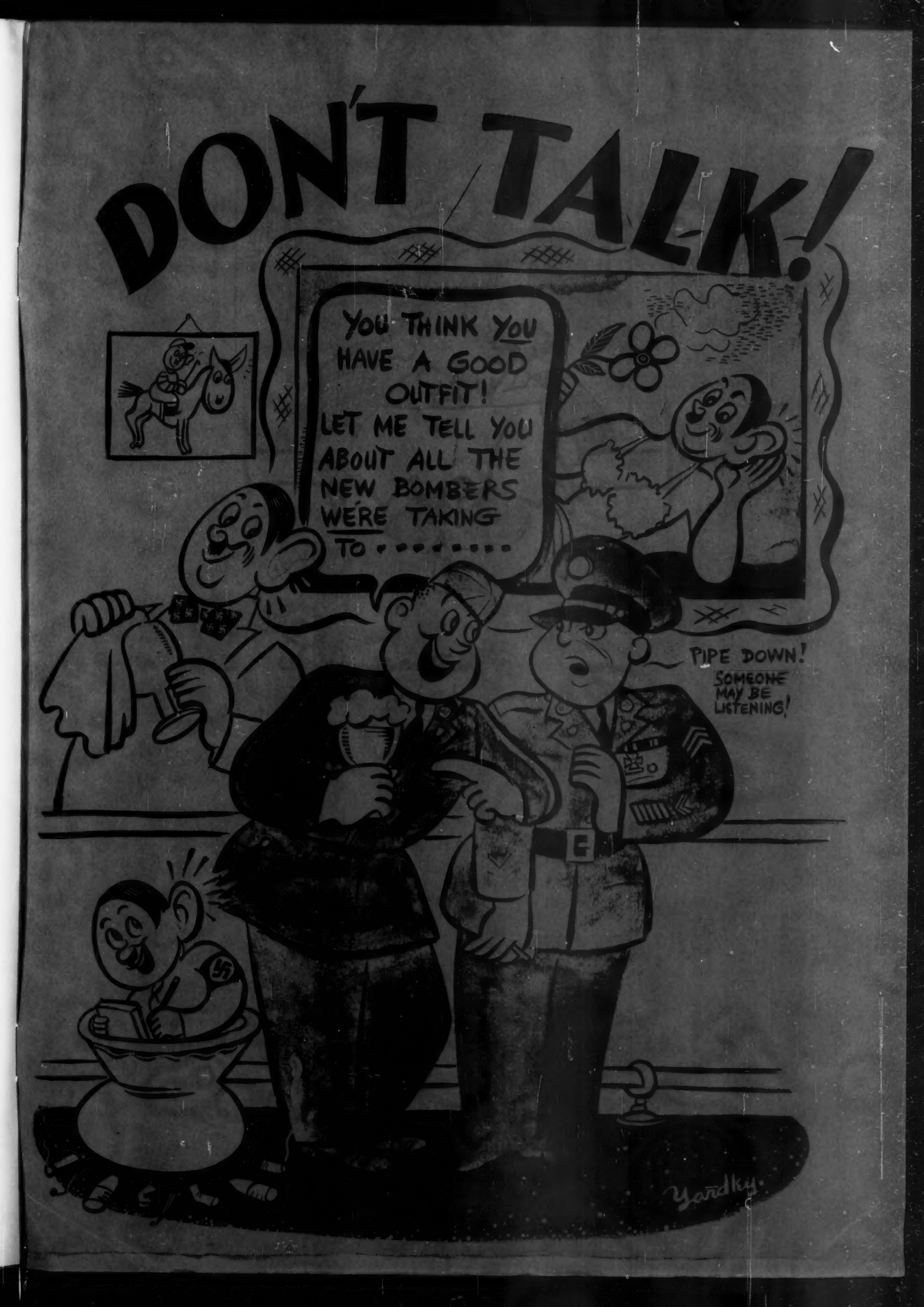
This decision was given by the War Department recently to the Defense Housing Coordinator in connection with a recent investigation concerning housing conditions in Belleville and surrounding community.

Scott Field at present provides facilities for a radio school, an Air Corps Technical School, and attached personnel of approximately 10,000. A new school area to house some 6,000 additional personnel will be occupied on November 1st, next. Plans provide for the training of 20,000 radio operators yearly, 400 to be graduated each week.

●

Recently added to the growing number of flying training schools under the Air Corps expansion program were one advanced school at Mission, Texas; three basic schools at Waco and Sherman, Texas, and Enid, Okla., all under the Gulf Coast Air Corps Training Center, and one basic school at Merced, Calif., under the West Coast Air Corps Training Center.

The Advanced Flying School at Lemoore, Calif., was redesignated as a basic flying school, and the Basic Flying School at Higley, Ariz., as an advanced flying school.


DON'T TALK!
YOU THINK YOU HAVE A GOOD OUTFIT! LET ME TELL YOU ABOUT ALL THE NEW BOMBERS WE'RE TAKING TO.....
PIPE DOWN! SOMEONE MAY BE LISTENING!
Yardley

KNOW YOUR AIRCRAFT